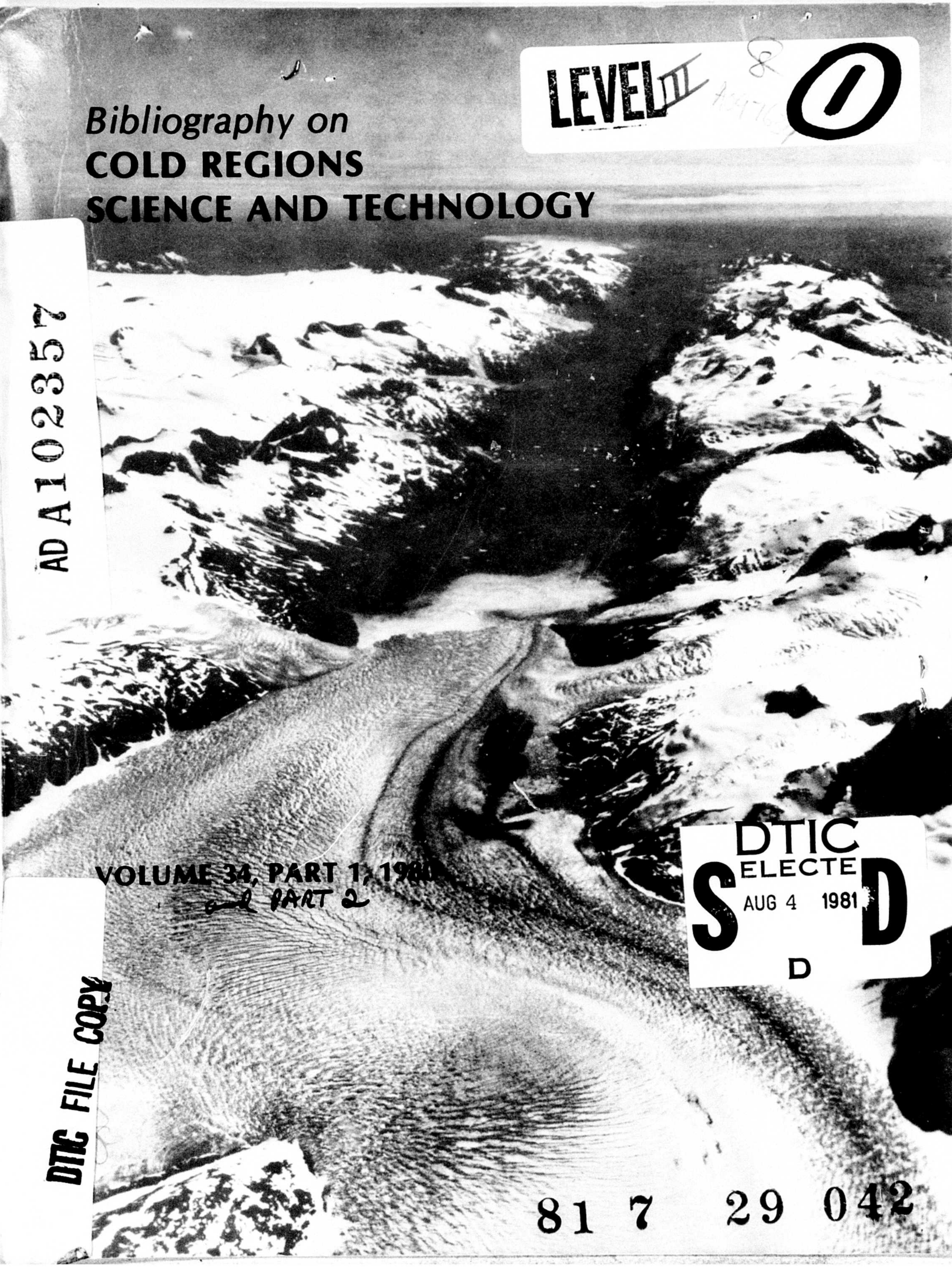
Bibliography on

COLD REGIONS SCIENCE AND TECHNOLOGY



VOLUME 34, PART 1, 1980
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Bibliography on COLD REGIONS SCIENCE AND TECHNOLOGY.

VOLUME 34, Part 1 and Part 2,

(10) Geza T. Thuronyi Editor

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Volume 34, 1980

INTRODUCTION

The *Bibliography on Cold Regions Science and Technology* was first published in 1951 and is a continuing publication of the Cold Regions Bibliography Project in the Science and Technology Division of the Library of Congress. It is sponsored by and prepared for the Cold Regions Research and Engineering Laboratory (formerly Snow, Ice and Permafrost Research Establishment) of the U.S. Army Corps of Engineers. Volumes 1-15 were issued as the *Bibliography on Snow, Ice and Permafrost*, SIPRE Report 12. Beginning with volume 16 the designation was changed to CRREL Report 12. With volume 20 the title was changed to *Bibliography on Snow, Ice and Frozen Ground, with Abstracts*, and with volume 23 the current title was adopted.

The present volume contains material accessioned between October 1979 and September 1980. It contains the full citation of 4255 items, in many cases with abstracts. Pt. 2 is an index section divided into author and subject indexes. In the author index principal and joint personal and corporate authors are listed along with the title, date, pagination, and language of the document and the accession number. The subject index is composed of three basic elements: 1) terms taken from a controlled vocabulary based on the *Thesaurus of Engineering and Scientific Terms* (LEX-E JC), 2) free terms added as needed, 3) geographic names, generally entered under countries. The terms are listed in a single alphabetical arrangement, along with title (original, translated, abridged, expanded, or supplied), principal author, date, pagination, and language of pertinent documents, and their accession numbers.

This publication is the result of a coordinated effort. The bibliographic work was done by the Cold Regions Bibliography Project Staff who entered all data on a single computerized data base that accommodates both the *Bibliography on Cold Regions Science and Technology* and the *Antarctic Bibliography*, thus eliminating duplication of effort between the two bibliographies. The data processing, based on MARC II input, was handled by the Library's Automated Systems Office and the photocomposition by the Cataloging Distribution Service.

Geza T. Thuronyi, Head
Cold Regions Bibliography Project
Science and Technology Division
Library of Congress

34-1
Vegetational successions and other ecosystemic changes in two Arctic tundras.
Peterson, K.M., Durham, N.C., Duke University, 1978, 305p., University Microfilms order No.79-05367, Ph.D. thesis. Refs. p.254-262.
Arctic landscapes, Tundra, Plant ecology, Ecosystems, Environmental impact, Human factors, Climatic factors, Permafrost.

34-2
Numerical investigation of Arctic Ocean circulation.
Semtner, A.J., Jr., Princeton, N.J., University, 1973, 251p., University Microfilms order No.74-9714, Ph.D. thesis. Refs. p.247-251.
Ocean currents, Mathematical models, Fluid dynamics, Arctic Ocean.

34-3
Physical hydrology; New Zealand experience.
Murray, D.L., ed, Wellington, New Zealand Hydrological Society (Inc.), 1979, 229p., Refs. passim. For selected article see 34-4.
Ackroyd, P., ed.
Hydrology, New Zealand.

34-4
Snow hydrology.
Fitzharris, B.B., Physical hydrology; New Zealand experience. Edited by D.L. Murray and P. Ackroyd, Wellington, New Zealand Hydrological Society (Inc.), 1979, p.23-43, 55 refs.
Snow hydrology, Snow water equivalent, Water reserves, Snow cover structure, Seasonal variations, Remote sensing, New Zealand.

34-5
Design of a large shaped charge suitable for the perforation of Arctic sea-ice.
Jones, J.M., *Canada. Defence Research Establishment, Valcartier. DREV technical note,* May 1971, DREV TN 1909/71, 32p., In English with French summary. 7 refs.
Sea ice, Explosives, Penetration tests.

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Ommanney, C.S.L., *Canada. Inland Waters Directorate. Report series,* 1978, No.59, 117p., In English and French with summaries in each.
Bibliographies, Glaciology, Canada.

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Morphological characteristics of ice grown from an impure melt.
Timco, G.W., *National Research Council. Canada. Division of Mechanical Engineering. Report,* June 1978, LTR-LT-91, 25p. + 26 figs., 41 refs.
Ice growth, Impurities, Ice structure, Ice strength, Temperature effects.

34-8
Icing of fishing vessels: an analysis of reports from Canadian east coast waters.
Stallabrass, J.R., *National Research Council. Canada. Division of Mechanical Engineering. Report,* June 1979, LTR-LT-98, 23p. + 20 figs. and 9p. appends., 17 refs.
Ice formation, Ship icing, Ice forecasting, Icing rate, Mathematical models.

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Ice mechanics.
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DLC TA714.5.M53
Ice mechanics, Ice formation, Sea ice, Ice pressure, Ice creep, Ice cover strength.

34-10
Frost protection layers made of cemented materials.
[Ustroĭstvo morozozashchitnykh sloev iz ukreplennykh materialov].
Guriachkov, I.L., et al, *Avtomobil'nye dorogi,* May 1979, No.5, p.8-10, In Russian
Agapova, R.A., Dudkin, A.S., Abramov, V.M.
Sands, Gravel, Cements, Frost heave, Frost protection, Roads, Roadbeds, Construction materials.

34-11
Cold tolerance of micro-arthropods from Alaskan taiga.
Block, W., *Ecological entomology,* May 1979, 4(2), p.103-110, 24 refs.
Soil microbiology, Cold tolerance, Taiga, Supercooling.
The objectives of the present study were to determine the degree of cold tolerance as exemplified by individual supercooling points, of prominent species of soil and litter dwelling microarthropods in a forest habitat in central Alaska, and to examine the effects of body water content, season and hence environmental temperature, on their ability to supercool. All arthropods tested were susceptible to freezing, and the mites utilize supercooling to avoid freezing. Reference is made to studies of supercooling in antarctic terrestrial arthropods.

34-12
Three soil profiles from Elephant Island, South Shetland Islands.
O'Brien, R.M.G., et al, *British Antarctic Survey. Bulletin,* Mar. 1979, No.47, p.1-12, 23 refs.
Romans, J.C.C., Robertson, L.
Soil profiles, Continuous permafrost, Soil composition, Weathering, Elephant Island.
Three soil profiles from ice-free areas around the periphery of Elephant Island are described and discussed. All three sites are underlain by continuous permafrost and the time interval since exposure to subaerial weathering and leaching is believed to range from several hundred years to about 10,000 yr. Incipient profile-horizon differentiation is just detectable on the oldest site but all three profiles show very little evidence of mineral weathering. (Auth.)

34-13
Antarctic fast-ice food chain: observations on the interaction of amphipod *Pontogeneia antarctica* Chevreux with ice-associated micro-algae.
Richardson, M.G., et al, *British Antarctic Survey. Bulletin,* Mar. 1979, No.47, p.106-115, 12 refs.
Whitaker, T.M.
Algae, Fast ice, Sea ice, Ecology.
Sea ice provides a great variety of sites for micro-algal growth. During winter 1973, observations were made on the colonization of the coastal ice foot at Signy Island and on the feeding habits of *Pontogeneia antarctica* Chevreux associated with the micro-algal growth. Samples of amphipods and micro-algae were taken using SCUBA diving techniques. The ice-associated micro-flora started development in early June with extensive growth of the blue-green algae *Phaeocystis antarctica* Karsten. This was replaced, mainly by diatoms, with *Navicula glaciei* Van Heurck and *Nitzschia curta* (Van Heurck) Hasle predominant. With the formation of fast ice, the amphipod migrated from its summer habitat among the weed bed of the shallow water to the coastal tide-crack area. Here a protracted hatching release started in August and both young and some adults fed on the developing micro-algal flora of the ice foot. *Pontogeneia antarctica* seems to be non-selective, consuming detrital, algal or crustacean material within a broad range of particle size. This omnivorous feeding, combined with protracted hatchling release and migration to the ice-associated food source present during the most winters, increases the probability that young will survive in a variable environment. (Auth.)

34-14
Environmental assessment of the Alaskan continental shelf. Vol.1. Physical science studies. Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, March 1979, 581p., Principal investigators' final project reports. For individual reports see 34-15 through 34-17.
Research projects, Geologic structures, Geomorphology, Shores, Sea ice, Oil spills, Environmental impact.

34-15
Environmental geology and geomorphology of the coastal zone of Kotzebue Sound and the Chukchi Sea forelands from Cape Prince of Wales to Cape Lisburne.
Cannon, P.J., Environmental assessment of the Alaskan continental shelf, Vol.1, Physical science studies. Principal investigators' final project reports, Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, March 1979, p.4-30, 2 refs.
Coastal topographic features, Geological surveys, Landforms, Remote sensing, Mapping.

34-16
Baseline study of historic ice conditions in the Beaufort Sea, Chukchi Sea, and Bering Strait.
Hunt, W.R., et al, Environmental assessment of the Alaskan continental shelf, Vol.1, Physical science studies. Principal investigators' final project reports, Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, March 1979, p.122-534.
Naske, C.-M.
Sea ice, Ice conditions, History.
The report is comprised mostly of excerpts from ship logs (traders, whalers, and government cutters) dating back to the mid-nineteenth century. Nearly all excerpts contain notations about ice. Maps are included showing monthly summer and fall positions of the ice edge broken down into twenty year segments from 1860 through 1970. Maps are for the Beaufort and Chukchi Seas abutting Alaska.

34-17
Transport, retention, and effects of the water-soluble fraction of Cook Inlet crude oil in experimental food chains.
Whipple, J.A., et al, Environmental assessment of the Alaskan continental shelf, Vol.1, Physical science studies. Principal investigators' final project reports, Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, March 1979, p.535-581, 23 refs.
Yocom, T.G., Smart, D.R., Cohen, M.H., Benville, P.E., Jr., Ture, M.E.
Crude oil, Marine biology, Oil spills, Nutrient cycle, Environmental impact, United States—Alaska—Cook Inlet.

34-18
Snow clearance on highways, 1968-1969. [Karayollarimizda kar mücadelesi, 1968-1969],
Turkey. Karayollari Genel Müdürlügü, Ankara, Genel Müdürlük, 1969, 23p., In Turkish.
DLC TD868.T87 1969
Snow removal, Roads, Turkey.

34-19
Remote estimation of the properties of sea ice, Beaufort Sea field trip report—March 1979.
Rossiter, J.R., et al, *Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering. C-Core publication,* June 1979, No.79-9, 35p., Sea ice.
Butt, K.A.
Ice electrical properties, Airborne radar, Ice conditions, Ice cover thickness.

34-20
Ecological profile.
National Petroleum Reserve in Alaska Task Force, Anchorage, Alaska, U.S. Department of the Interior, 1978, 118p. + maps, Refs. p.107-118.
Tundra, Meadow soils, Animals, Ecology, Fires, Oil spills, Damage.

34-21
Values and resource analysis, Vol.2.
National Petroleum Reserve in Alaska Task Force, Anchorage, Alaska, U.S. Department of the Interior, 1978, c.200p. + maps, Numerous refs. passim.
Natural resources, Water reserves, Minerals, Recreation.

34-22
Ice-scour tracks in eastern Mackenzie Bay and north of Pullen Island, Beaufort Sea.
Wahlgren, R.V., *Canada. Geological Survey. Paper,* 1979, 79-1B, p.51-62, 22 refs.
Ice scoring, Echo sounding, Bottom topography.

34-23
Mudboil activity, central District of Keewatin.
Egginton, P.A., *Canada. Geological Survey. Paper,* 1979, 79-1B, p.349-356, 6 refs.
Patterned ground, Frost heave, Soil creep, Soil water migration, Animals.

34-24
Aspects of the glacial history of the north-central highlands of New Brunswick.
Gauthier, R.C., *Canada. Geological Survey. Paper,* 1979, 79-1B, p.371-377, 12 refs.
Glacial geology.

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Glacial geology of northwestern Boothia Peninsula, District of Franklin.
Dyke, A.S., *Canada. Geological Survey. Paper,* 1979, 79-1B, p.385-394, 15 refs.
Glacial geology.

34-26
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Eastern Snow Conference, Hanover, New Hampshire, 1978, 218p., For individual papers see 32-3629 and 34-27 through 34-41.
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34-27
Development of a forecast guidance product for lake-effect snowstorms.
Dewey, K.F., *Eastern Snow Conference. Proceedings,* 1978, 35th, p.4-11, 10 refs.
Snowstorms, Lake effects, Weather forecasting, Models.

34-28
Lake effect snows off the east end of Lake Ontario.
Lansing, L., *Eastern Snow Conference. Proceedings,* 1978, 35th, p.12-16.
Snowstorms, Lake effects, Weather forecasting, Ontario, Lake.

34-29
Current forecast procedures for lake effect snows in western New York especially related to 1976-1977 and 1977-1978 winters.
Kolker, B., *Eastern Snow Conference. Proceedings.* 1978, 35th, p.17-35, 7 refs.
Weather forecasting, Snowstorms, Lake effects, Radar echoes.

34-30
Accuracy of snow samplers for measuring shallow snowpacks: an update.
Goodison, B.E., *Eastern Snow Conference. Proceedings.* 1978, 35th, p.36-49, 8 refs.
Snow samplers, Measuring instruments.

34-31
Snow surveys in the Black River drainage area.
Mayhew, K.H., *Eastern Snow Conference. Proceedings.* 1978, 35th, p.50-55.
Snow surveys, United States—New York—Black River.

34-32
Developments in snow measurements with gamma radiation.
Paulin, G., *Eastern Snow Conference. Proceedings.* 1978, 35th, p.56-62, 2 refs.
Precipitation gages, Gamma irradiation, Snow density, Snow water content.

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NOAA satellite monitoring of snow cover in the northern hemisphere during the winter of 1977.
Wiesnet, D.R., et al, *Eastern Snow Conference. Proceedings.* 1978, 35th, p.63-80, 5 refs.
Matson, M., McGinnis, D.F.
Remote sensing, Snow cover distribution, Spaceborne photography, Seasonal variations, Meteorological data.

34-34
Future U.S. satellite programs of interest to snow scientists.
Wiesnet, D.R., *Eastern Snow Conference. Proceedings.* 1978, 35th, p.81-88.
Research projects, Spacecraft, Remote sensing, Snow cover.

34-35
Ice conditions on the Chesapeake Bay as observed from Landsat during the winter of 1977.
Foster, J., et al, *Eastern Snow Conference. Proceedings.* 1978, 35th, p.89-104, 6 refs.
Schultz, D., Dallam, W.C.
Ice conditions, Ice cover, Remote sensing, LANDSAT, Classifications, Ice cover thickness, United States—Chesapeake Bay.

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Hydraulic characteristics of snow lysimeters.
Wankiewicz, A., *Eastern Snow Conference. Proceedings.* 1978, 35th, p.105-116, 12 refs.
Measuring instruments, Snow water content, Hydraulics.

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Adams, W.P., et al, *Eastern Snow Conference. Proceedings,* 1978, 35th, p.117-128, 10 refs.
Prowse, T.D.
Lake ice, Snow cover, Snow physics, Snow depth, Snow density, Snow water equivalent.

34-38
Snow cover suitability percentiles for skiing and snowmobiling.
Crowe, R.B., *Eastern Snow Conference. Proceedings,* 1978, 35th, p.129-140, 1 ref.
Climatology, Snow cover, Meteorological data, Skiing, Snow vehicles.

34-39
Effect of elevation on snowfall and rainfall—first results from the Mt. Mansfield network.
Hendrick, R.L., et al, *Eastern Snow Conference. Proceedings,* 1978, 35th, p.141-152, 1 ref.
Heath, D.B.
Precipitation (meteorology), Snowfall, Altitude.

34-40
Snowmelt computations for a high Arctic site.
Heron, R., et al, *Eastern Snow Conference. Proceedings,* 1978, 35th, p.162-172, 8 refs.
Woo, M.
Heat transfer, Snowmelt, Radiation, Ablation, Heat balance.

34-41
Magnitude and significance of the terrestrial snowpack and white ice contribution to the phosphorus budget of a lake in the Canadian Shield region of the Kawartha Lakes.
English, M.C., *Eastern Snow Conference. Proceedings,* 1978, 35th, p.173-189, 18 refs.
Lake ice, Snow composition, Impurities, Water chemistry, Ice formation.

34-42
Linköping test field 1976. Investigations of the occurrence and frequency of icing on various roadbases. 1. Test field construction. [Halkfält Linköping 1976. Utredning av halkuppkomst och halkfrekvens vid olika vägöverbyggnader 1. Halkfältets upbyggnad],
Gustafson, K., *Sweden. Statens väg- och trafikinstitut. Meddelande,* 1977, No.27, 12p. + 21 figs., In Swedish.
Roads, Pavements, Subgrades, Thermal insulation, Icing.

34-43
Linköping test field 1976. Investigation of the occurrence and frequency of icing on various roadbases. 2. Investigation of icing February to April, 1977. [Halkfält Linköping 1976. Utredning av halkuppkomst och halkfrekvens vid olika vägöverbyggnader 2. Halkundersökningar februari till april 1977],
Gustafson, K., *Sweden. Statens väg- och trafikinstitut. Meddelande,* 1977, No.56, c.110 leaves, In Swedish with extended English summary. 3 refs.
Roads, Subgrades, Thermal insulation, Frost protection, Temperature variations.

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Convection in the ice crusts of satellites and its effect on surface relief.
Golitsyn, G.S., *Geophysical research letters,* June 1979, 6(6), p.466-468, 13 refs.
Extraterrestrial ice, Ice cover effect, Heat transfer, Planetary environments.

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Lehmuskoski, P., et al, *Geophysica,* 1978, 15(1), p.101-123, 28 refs.
Mäkinen, J.
Gravimetric prospecting, Sea ice, Measuring instruments.

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Determination of snow avalanche frequency through tree-ring analysis and historical records at Ophir, Colorado.
Carrara, P.E., *Geological Society of America. Bulletin,* Aug. 1979, Pt.1, 90(8), p.773-780, 21 refs.
Trees (plants), Avalanches.

34-47
Glacial and postglacial sediments in Lakes Superior and Michigan.
Lineback, J.A., et al, *Geological Society of America. Bulletin,* Aug. 1979, Pt.1, 90(8), p.781-791, 23 refs.
Dell, C.I., Gross, D.L.
Lacustrine deposits, Bottom sediment, Glacial deposits.

34-48
Depositional history of artificial radionuclides in the Ross Ice Shelf, Antarctica.
Koide, M., et al, *Earth and planetary science letters,* Aug. 1979, 44(2), p.205-223, 25 refs.
Michel, R., Goldberg, E.D., Herron, M.M., Langway, C.C., Jr.
Ice shelves, Fallout, Ice composition, Atmospheric composition, Antarctica—Ross Ice Shelf.
The annual fluxes of artificial radionuclides (Pu-239, Pu-239 + 240, Am-241, Cs-137, Sr-90 and H-3) from the atmosphere to the Ross Ice Shelf in Antarctica were determined from measurements in strata data by Pb-210. Recognizable sources include the U.S. tests (Mike-Ivy and Castle Hill) in the early 1950s, the U.S.S.R. tests in the early 1960s, the SNAP-9A burnup of 1964 and the French and Chinese tests in the late 1960s and 1970s. There are several problems still awaiting resolution: the differences in atmospheric chemistries of fission products and of transuranics produced in weapon tests and the anomalous fluxes of Pu-238 to the ice shelf which do not appear to reflect a one-year stratospheric residence. There is no evidence for a smearing of the fallout record as a consequence of diffusion of these radionuclides in the glacial column. (Auth.)

34-49
Proceedings.
International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978, National Research Council. Transportation Research Board. Special report 185, Washington, D.C., National Academy of Sciences, 1979, 355p., For individual reports see 32-2752, 33-57, and 34-50 through 34-102
DLC TE220.5.I55 1978
Meetings, Snow removal, Ice control.

34-50
New European views on snow and ice control development.
Elsenaar, P.M.W., *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.1-5, 6 refs.
DLC TE220.5.I55 1978
Winter maintenance, Salting, Snow removal.

34-51
Studies related to removal of snow and ice from transportation facilities.
Ringer, T.R., *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.6-8, 8 refs.
DLC TE220.5.I55 1978
Research projects, Aircraft icing, Ice removal, Snow removal.

34-52
Compaction of wet snow on highways.
Colbeck, S.C., *National Research Council. Transportation Research Board. Special report,* 1979, No.185, MP 1234, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.14-17, 7 refs.
DLC TE220.5.I55 1978
Wet snow, Snow compaction, Snow removal, Salinity.
The compressibility of wet snow decreases with decreasing liquid water content but increases with decreasing salinity. Also, the tendency for snow splashing on highways increases with decreasing salinity. These opposite effects are complicated by the fact that liquid water content and salinity are not necessarily independent. The amount of liquid present can be controlled somewhat by the road grade, and salinity is generally determined by how much salt is applied to the road surface. For different situations it may be desirable to regulate salt applications in order to achieve a maximum amount of splashing with a minimum of compaction of wet snow into ice. Here we provide a qualitative review of wet snow and suggest how an understanding of wet snow's behavior on a road surface might increase our ability to deal with snow removal problems.

34-53
Studies on tensile strength of wet snow.
Wakahama, G., et al, *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.18-22, 5 refs.
Mizuno, Y.
DLC TE220.5.I55 1978
Wet snow, Tensile properties, Adhesion, Snow accumulation.

34-54
Adhesion of ice to concrete surfaces—preliminary results.
Ashworth, T., et al, *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.23-29, 17 refs.
Tollefsen, B., Weyland, J.A.
DLC TE220.5.I55 1978
Ice adhesion, Concrete pavements, Ice solid interface, Tensile properties.

34-55
Adhesive strength of contaminated ice.
Yano, K., *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.30-34, 4 refs.
DLC TE220.5.I55 1978
Ice adhesion.

34-56
Electrical properties of ice-solid interfaces.
Camp, P.R., et al, *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.35-43, 8 refs.
Halchin, D.J.
DLC TE220.5.155 1978
Ice solid interface, Ice electrical properties, Dielectric properties, Temperature effects, Impurities.

34-57
Numerical simulation of atmospheric ice accretion.
Ackley, S.F., et al, *National Research Council. Transportation Research Board. Special report,* 1979, No.185, MP 1235, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.44-52, 7 refs.
Templeton, M.K.
DLC TE220.5.155 1978
Ice accretion, Mathematical models, Environment simulation, Drops (liquids), Particle size distribution, Time factor.
Time-dependence enters into calculations of ice accretion on objects primarily through terms dependent on the initial conditions and size and geometry of the object. A numerical technique to include the time-dependence is described here as well as simulation of complex situations where the conditions vary, for example, along a helicopter rotor blade. Some results of varying droplet sizes, velocity, and droplet distributions are presented. These indicate the general dependence of ice accretion on these parameters as well as illustrate the utility of numerical techniques in seeing how these effects can influence the rates of ice accretion for particular initial conditions.

34-58
Preliminary assessment of an ice accretion system.
Tattelman, P., *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.53-56, 12 refs.
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Ice accretion, Environment simulation, Measuring instruments, Cold chambers.

34-59
Model for traffic delay and its convenience and wage costs.
Kennedy, W.J., et al, *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.57-60, 4 refs.
Austin, J.A., Jr.
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Cost analysis, Transportation, Snow cover effect, Models.

34-60
Environmental model for predicting impacts from deicing salts.
Thuet, J.H., *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.61-65, 17 refs.
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Environment simulation, Environmental impact, Models, Salting, Damage.

34-61
Value engineering study of snow and ice control.
Russell, G.L., et al, *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.66-73.
Sorenson, H.K.
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Cost analysis, Snow removal, Ice control, Surveys.

34-62
Effects of highway design standards on snow and ice control operations.
Hogan, R.A., *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.74-78, 3 refs.
DLC TE220.5.155 1978
Snow removal, Ice control, Road maintenance, Winter maintenance.

34-63
Snow removal and ice control standards at Canadian airports.
Levitsky, W.V., *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.79-81.
DLC TE220.5.155 1978
Airports, Snow removal, Ice control, Canada.

34-64
New Jersey Department of Transportation model for winter equipment and manpower allocations.
Cifelli, N.J., et al, *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.82-84.
DLC TE220.5.155 1978
Snow removal, Winter maintenance, Maintenance personnel.

34-65
Laboratory experiments on icing of rotating blades.
Ackley, S.F., et al, *National Research Council. Transportation Research Board. Special report,* 1979, No.185, MP 1236, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.85-92, 7 refs.
Lemieux, G., Itagaki, K., O'Keefe, J.
DLC TE220.5.155 1978
Laboratory techniques, Ice accretion, Helicopters, Ice cover thickness, Temperature effects.
Experiments have been conducted to provide a basis for a computer model that simulates atmospheric ice accretion on a rotating blade. A comparison of the computer model simulation and experimental results reveals that general agreement exists within the temperature range 0 C to -25 C and the velocity range 0 to 60 m/s. Beyond 60 m/s the computer simulation over-predicts the thickness of the ice accretion at the leading edge. Below -25 C the simulation and experimental results disagree in that the simulation significantly overpredicts the thickness of the accretion at the leading edge.

34-66
Crystalline structure of ice developing by accretion of supercooled water droplets on a single wire and growth process of rime on a square board placed in the air flow containing supercooled droplets and snow flakes.
Abe, M., et al, *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.93-94.
Yano, K.
DLC TE220.5.155 1978
Ice crystal structure, Supercooling, Ice accretion.

34-67
Experimental studies of snow accretion on power lines.
Fujino, K., et al, *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.95-100, 5 refs.
Kobayashi, K., Wakahama, G.
DLC TE220.5.155 1978
Snow accumulation, Power lines, Snow crystal structure, Snow crystal growth, Wind velocity.

34-68
Snow accretion on traffic-control sign boards and its prevention.
Takeuchi, M., *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.101-105, For Japanese original see 33-1197.
DLC TE220.5.155 1978
Snow accumulation, Blowing snow.

34-69
Icephobic coatings for highway pavements.
Cook, J.C., *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.106-115, 10 refs.
DLC TE220.5.155 1978
Ice adhesion, Pavements, Ice prevention, Protective coatings, Cold weather tests, Ice removal, Snow removal.

34-70
Method of predicting road salt runoff in New Hampshire.
Spear, P.W., et al, *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.116-120, 9 refs.
Schiffman, M.J.
DLC TE220.5.155 1978
Ice removal, Salting, Chemical properties, Runoff, Environmental impact.

34-71
Use of synthetic snowfalls in the evaluation of snow removal systems.
Sage, J.D., *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.121-128, 12 refs.
DLC TE220.5.155 1978
Snowfall, Mathematical models, Computerized simulation, Environment simulation, Snow removal, Cost analysis.

34-72
Control of snow and ice on road and communication facilities in the Himalayas.
Malik, S.C.L., et al, *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.129-134.
Singh, L.D.
DLC TE220.5.155 1978
Snow removal, Chemical ice prevention, Road maintenance, Telecommunication, Topographic effects, Wind velocity, Himalaya Mountains.

34-73
Snow and road pavements in western Himalayas.
Soin, J.S., et al, *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.135-140.
Dhir, M.P.
DLC TE220.5.155 1978
Road maintenance, Snow cover effect, Mountains, Winter maintenance, Topographic factors, Climate, Himalaya Mountains.

34-74
Snow clearance—west Himalayan road—some problems.
Soin, J.S., *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.141-150
DLC TE220.5.155 1978
Construction, Road maintenance, Snow removal, Topographic effects, Avalanches, Himalaya Mountains.

34-75
Overview of some of the factors influencing snow and ice control and the resultant impacts of their implementation.
Belangie, M.C., *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.151-158, 12 refs.
DLC TE220.5.155 1978
Snow removal, Ice control, Cost analysis, Public opinion polls.

34-76
Heating bridge decks by electrical resistance.
Havens J.H., et al, *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.159-168, 2 refs.
Azevedo, W.V., Rahal, A.S., Deen, R.C.
DLC TE220.5.155 1978
Bridges, Snow removal, Ice removal, Electric heating.

34-77
Geothermal heating of bridge decks.
Cundy, V.A., et al. *National Research Council Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.169-175, 7 refs.
Nydahl, J.E., Pell, K.M.
DLC TE220.5.155 1978
Heat sources, Geothermal prospecting, Pipes (tubes), Snow removal, Bridges.

34-78
Physical alternatives to chemicals for highway deicing.
Blackburn, R.R., et al. *National Research Council Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.176-184, 1 ref.
St. John, A.D.
DLC TE220.5.155 1978
Snow strength, Ice adhesion.

34-79
On the performance of a two stage rotary snow blower.
Shibuya, M., et al. *National Research Council Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.185-191, 1 ref.
Kuriyama, H.
DLC TE220.5.155 1978
Snow removal, Cold weather performance.

34-80
Airborne snow concentration and visibility.
Stallabrass, J.R., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.192-199, 7 refs.
DLC TE220.5.155 1978
Snowfall, Visibility, Distribution, Density (number - volume).

34-81
Measuring visibility in blowing snow.
Schmidt, R.A., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.200-207, 15 refs.
DLC TE220.5.155 1978
Visibility, Blowing snow, Measuring instruments.

34-82
Visibility in blowing snow and applications in traffic operations.
Tabler, R.D., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.208-214, 6 refs.
DLC TE220.5.155 1978
Blowing snow, Visibility, Wind velocity, Computer applications.

34-83
Present status of the bridge ice detection program at FHWA.
Leifer, J.C., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.215-219.
DLC TE220.5.155 1978
Bridges, Ice detection, Radiation measuring instruments.

34-84
Systems study of snow removal.
Minsk, L.D., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, MP 1237, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.220-225, 4 refs.
DLC TE220.5.155 1978
Snow removal, Systems analysis.
The framework for a systems analysis of snow removal and ice control on roads is presented. Definition of the operating conditions, the principal ones of which are climate and traffic, as well as the system itself, the road net, is required. Equipment factors involved in performing the basic functions of clearing, spreading, loading, and hauling are analyzed.

34-85
Research on an air lubricated snow plow.
Ringer, T.R., et al. *National Research Council Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.226-231, 4 refs.
Mazur, T.M.
DLC TE220.5.155 1978
Snow removal, Lubricants.

34-86
Study on the resistance of snowplowing and the running stability of a snow removal truck.
Kaku, T., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.232-239, 3 refs.
DLC TE220.5.155 1978
Snow removal, Friction, Stability.

34-87
Snow removal and ice control on the Italian turnpike network.
Rocco, V., et al. *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.240-244.
Cedda, C.
DLC TE220.5.155 1978
Snow removal, Ice control, Winter maintenance, Italy.

34-88
Snow removal and ice control for ground transport channels and terminals.
Huang, E.Y., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.245-253.
DLC TE220.5.155 1978
Snow removal, Ice control.

34-89
About snow drifts.
Jumikis, A.R., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.254-258, 16 refs.
DLC TE220.5.155 1978
Snowdrifts, Blowing snow, Snow physics, Snow cover structure.

34-90
Alternative highway deicing chemicals.
Dunn, S.A., et al, *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.261-269, 25 refs.
Schenk, R.U.
DLC TE220.5.155 1978
Ice removal, Chemical ice prevention, Road maintenance.

34-91
Effect of chloride concentration on automobile stopping distance.
Hu, A.C.H., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.270-274.
DLC TE220.5.155 1978
Ice removal, Motor vehicles, Skid resistance.

34-92
Evaluation of the use of salt brine for deicing purposes.
Kasinskas, M.M., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.275-281, 4 refs.
DLC TE220.5.155 1978
Snow removal, Chemical ice prevention, Ice removal, Brines.

34-93
Enhancing ice-melting action of rock salt by prewetting with calcium chloride.
Lattimore, D.R., et al. *National Research Council Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.282-288, 14 refs.
Mossner, E.H., Nixon, J.G.
DLC TE220.5.155 1978
Chemical ice prevention, Snow removal, Salting, Ice melting.

34-94
Detachment of ice from surfaces by application of high intensity light.
Mouat, T.W., et al. *National Research Council Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.289-292, 5 refs.
Saunders, R.L.
DLC TE220.5.155 1978
Ice removal, Light effects, Ice solid interface.

34-95
Computer simulation of urban snow removal.
Tucker, W.B., et al. *National Research Council. Transportation Research Board. Special report*, 1979, No.185, MP 1238, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.293-302, 11 refs.
Clohan, G.M.
DLC TE220.5.155 1978
Snow removal, Computerized simulation, Environment simulation.
A general computer model to simulate urban snow removal has been developed. One part of the package includes several programs which assist in the routing of snow removal vehicles using computer graphics. The primary element, however, is a program which, once specific vehicle routes are input, allows the simulation of any particular snow removal scenario. Parameters that can be varied include both truck and snowstorm characteristics. This simulation program is tested using truck routes and storm data from Newington, Connecticut. Results indicate that the simulation predicts plowing times quite reasonably.

34-96
Countermeasures against snow accretion and icing on radomes.
Suzuki, M., et al. *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.303-307, 4 refs.
Sha, K., Tsukawaki, T.
DLC TE220.5.155 1978
Snow accumulation, Ice accretion, Radomes, Countermeasures.

34-97
Protection methods for railway switches in snow conditions.
Ringer, T.R., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.308-313, 5 refs.
DLC TE220.5.155 1978
Snow cover effect, Icing, Railroad tracks.

34-98
Development of a snowplough/salt spreading vehicle for ice and snow clearance of motorways in England.
Gould, R.J., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.314-317.
DLC TE220.5.155 1978
Snow removal, Ice removal, United Kingdom.

34-99
Snow collection by possible high speed guidway sections.
Ringer, T.R., et al. *National Research Council Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.318-327, 5 refs.
Price, R.D.
DLC TE220.5.155 1978
Snow accumulation, Air cushion vehicles, Guideways.

34-100
Combatting ice on AIRTRANS and other guideways.
Patton, R.J., et al, *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.328-336, 11 refs.
Raven, R.R.
DLC TE220.5.155 1978
Ice accretion, Countermeasures, Guideways.

34-101
All-weather protection for AGT guideways and stations.
Stevens, R.D., et al, *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.337-342.
Nicarico, T.J.
DLC TE220.5.155 1978
Cold weather operation, Icing, Countermeasures, Guideways.

34-102
Controlling snow and ice on the Morgantown people mover system.
Morgan, P.H., *National Research Council. Transportation Research Board. Special report,* 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.343-349, 5 refs.
DLC TE220.5.155 1978
Snow removal, Ice control, Cold weather operation, Guideways.

34-103
Trace element content of Greenland snows along an east-west transect.
Boutron, C., *Geochimica et cosmochimica acta,* Aug. 1979, 43(8), p.1253-1258, 24 refs.
Snow composition, Snow impurities, Aerosols, Chemical composition, Greenland.

34-104
Successions of lithophile lichen communities in the northern Ural highlands. [Suktsessii soobshchestv litofil'nykh lishalnikov v vysokogor'iakh Severnogo Urala],
Magomedova, M.A., *Ekologiia,* May-June 1979, No.3, p.29-38, In Russian. 10 refs.
Alpine tundra, Lichens, Plant ecology, Ecosystems.

34-105
***Pinus sibirica* as an indicator of environmental conditions in the Khamar-Daban Mountains and Tunkinskiye Gol'tsy.** [Kedr sibirskiĭ—indikator usloviĭ mestoobitaniia na Khamar-Dabane i Tunkinskikh Gol'tsakh],
Tarakanov, A.G., *Ekologiia,* May-June 1979, No.3, p.80-83, In Russian. 7 refs.
Alpine landscapes, Forest soils, Forest ecosystems, Geocryology, Solifluction, Snow cover distribution, Slope orientation.

34-106
Proceedings of the Scientific Conference on Altai Glaciology Problems. [Materialy nauchnoĭ konferentsii],
Nauchnaia konferentsiia Problemy gliatsiologii Altaia, Tomsk, 1973, Tomsk, Universitet, 1973, 259p., In Russian. For selected papers see 34-107 through 34-114. Refs. passim.
Kortusov, M.P., ed.
DLC GB2556.A57N38
Mountain glaciers, Radio echo soundings, Glacial hydrology, Glacier ablation, Albedo, Snow cover distribution, Snow recrystallization, Glacier alimentation, Ice sublimation, Snow evaporation, Periglacial processes.

34-107
Causes of changes in glacier melting. [O nekotorykh prichinakh kolebaniia taianiia lednikov],
Drozdov, O.A., et al, Nauchnaia konferentsiia Problemy gliatsiologii Altaia, Tomsk, 1973. Materialy (Scientific conference on Altai glaciology problems, Tomsk, 1973. Proceedings) edited by M.P. Kortusov, Tomsk, Universitet, 1973, p.21-27, In Russian. 17 refs.
Mosolova, G.I.
DLC GB2556.A57N38
Solar radiation, Glacier ablation, Albedo, Climatic factors, Glacier oscillation, Glacier ice, Ice melting.

34-108
Structure of Altai snow cover. [Struktura snezhnoĭ tolshchi Altaia],
Reviakin, V.S., et al, Nauchnaia konferentsiia Problemy gliatsiologii Altaia, Tomsk, 1973. Materialy (Scientific conference on Altai glaciology problems, Tomsk, 1973. Proceedings) edited by M.P. Kortusov Tomsk, Universitet, 1973, p.28-36, In Russian. 7 refs.
Varganova, M.S.
DLC GB2556.A57N38
Snow cover distribution, Snow accumulation, Snowdrifts, Snow cover structure, Snow recrystallization, Snow stratigraphy.

34-109
Use of tethered radiosondes in the Aktru mountain glacier basin. [Primenenie priviaznykh radiozondov v gorno-lednikovom basseĭne Aktru],
Slutskiĭ, V.I., et al, Nauchnaia konferentsiia Problemy gliatsiologii Altaia, Tomsk, 1973. Materialy (Scientific conference on Altai glaciology problems, Tomsk, 1973. Proceedings) edited by M.P. Kortusov, Tomsk, Universitet, 1973, p.82-86, In Russian.
Sevast'ianov, V.V., Snegirev, IU.B.
DLC GB2556.A57N38
Mountain glaciers, Glacial meteorology, Balloons, Measuring instruments, Design.

34-110
Glaciological and climatological significance of ablation periods. [Gliatsiologicheskoe i klimatologicheskoe znachenie abliatsionnogo perioda],
Oleĭnik, I.IA., Nauchnaia konferentsiia Problemy gliatsiologii Altaia, Tomsk, 1973. Materialy (Scientific conference on Altai glaciology problems, Tomsk, 1973. Proceedings) edited by M.P. Kortusov, Tomsk, Universitet, 1973, p.87-92, In Russian.
DLC GB2556.A57N38
Ice sublimation, Glacier ablation, Snow evaporation, Mountain glaciers, Ice melting, Mass balance.

34-111
Accuracy of using floats in measuring water discharge of small mountain rivers. [Issledovanie tochnosti izmereniia raskhodov vody poplavkami na malykh gornykh rekakh],
Chirkova, A.A., et al, Nauchnaia konferentsiia Problemy gliatsiologii Altaia, Tomsk, 1973. Materialy (Scientific conference on Altai glaciology problems, Tomsk, 1973. Proceedings) edited by M.P. Kortusov, Tomsk, Universitet, 1973, p.115-128, In Russian. 12 refs.
Shantykova, L.N., Glazyrin, G.E.
DLC GB2556.A57N38
Glacial hydrology, Glacial rivers, Drainage, Measuring instruments, Accuracy.

34-112
Periglacial vegetation of the Katun Range. [K izucheniiu perigliatsial'noĭ rastitel'nosti Katunskogo khrebta],
Reviakina, N.V., Nauchnaia konferentsiia Problemy gliatsiologii Altaia, Tomsk, 1973. Materialy (Scientific conference on Altai glaciology problems, Tomsk, 1973. Proceedings) edited by M.P. Kortusov, Tomsk, Universitet, 1973, p.136-140, In Russian. 7 refs.
DLC GB2556.A57N38
Alpine landscapes, Periglacial processes.

34-113
Permafrost and paleogeographic problems of northwestern Siberia. [Problemy paleogeografii severa Zapadnoĭ Sibiri i mnogoletniaia merzlota],
Zemtsov, A.A., Nauchnaia konferentsiia Problemy gliatsiologii Altaia, Tomsk, 1973. Materialy (Scientific conference on Altai glaciology problems, Tomsk, 1973. Proceedings) edited by M.P. Kortusov, Tomsk, Universitet, 1973, p.157-163, In Russian. 15 refs.
DLC GB2556.A57N38
Permafrost origin, Permafrost distribution, Permafrost thickness, Paleoecology, Paleoclimatology.

34-114
Meteorological visibility range of 4 km and less at airports of West Siberia. [Meteorologicheskaia dal'nost' vidimosti 4 km i menee v aeroportakh Zapadnoĭ Sibiri],
Martem'ianova, E.S., Nauchnaia konferentsiia Problemy gliatsiologii Altaia, Tomsk, 1973. Materialy (Scientific conference on Altai glaciology problems, Tomsk, 1973. Proceedings) edited by M.P. Kortusov, Tomsk, Universitet, 1973, p.243-250, In Russian. 13 refs.
DLC GB2556.A57N38
Airports, Ice fog, Visibility, Forecasting.

34-115
Economic peculiarities of organizing raw material bases for Yakutian industry. [Ekonomicheskie osobennosti podgotovki syr'evoĭ bazy promyshlennosti IAkutskoĭ ASSR],
Kirillin, A.D., ed, Yakutsk, Yakut. filial SO AN SSSR, 1977, 121p., In Russian. For selected papers see 34-116 through 34-120.
Krivoshapkin, A.I., Poiseev, I.I., ed.
DLC TN110.Y3E36
Gas pipelines, Permafrost beneath structures, Permafrost control, Gas production, Liquefied gases, Storage, Geological surveys, Drilling, Cost analysis.

34-116
Methods of determining the economic effectiveness of geological surveys. [O metodakh opredeleniia ekonomicheskoĭ effektivnosti geologorazvedochnykh rabot],
Andreev, M.G., et al, Ekonomicheskie osobennosti podgotovki syr'evoĭ bazy promyshlennosti IAkutskoĭ ASSR (Economic peculiarities of organizing raw material bases for Yakutian industry) edited by A.D. Kirillin, A.I. Krivoshapkin and I.I. Poiseev, Yakutsk, Yakut. filial SO AN SSSR, 1977, p.3-10, In Russian.
Kirillin, A.D., Krivoshapkin, A.I.
DLC TN110.Y3E36
Geological surveys, Permafrost distribution, Cost analysis.

34-117
Improving the organization of geological surveys. [Voprosy sovershenstvovaniia organizatsii geologorazvedochnykh rabot],
Ermolaev, K.M., Ekonomicheskie osobennosti podgotovki syr'evoĭ bazy promyshlennosti IAkutskoĭ ASSR (Economic peculiarities of organizing raw material bases for Yakutian industry) edited by A.D. Kirillin, A.I. Krivoshapkin and I.I. Poiseev, Yakutsk, Yakut. filial SO AN SSSR, 1977, p.19-26, In Russian.
Geological surveys, Permafrost distribution, Cost analysis.

34-118
Cost of natural gas production in the Yakut ASSR. [Nekotorye voprosy ekonomiki dobychi prirodnogo gaza v IAkutskoĭ ASSR],
Popova, V.K., Ekonomicheskie osobennosti podgotovki syr'evoĭ bazy promyshlennosti IAkutskoĭ ASSR (Economic peculiarities of organizing raw material bases for Yakutian industry) edited by A.D. Kirillin, A.I. Krivoshapkin and I.I. Poiseev, Yakutsk, Yakut. filial SO AN SSSR, 1977, p.86-92, In Russian.
Gas production, Natural gas, Gas pipelines, Permafrost beneath structures, Drilling, Cost analysis.

34-119
Possibility of increasing gas supply to Central Yakutia. [O vozmozhnosti rasshireniia gazosnabzheniia tsentral'nykh raĭonov IAkutii],
Emel'ianov, V.G., Ekonomicheskie osobennosti podgotovki syr'evoĭ bazy promyshlennosti IAkutskoĭ ASSR (Economic peculiarities of organizing raw material bases for Yakutian industry) edited by A.D. Kirillin, A.I. Krivoshapkin and I.I. Poiseev, Yakutsk, Yakut. filial SO AN SSSR, 1977, p.93-98, In Russian. 7 refs.
Gas production, Gas pipelines, Permafrost beneath structures, Liquefied gases, Storage.

34-120
Environmental protection problems in the construction of gas industry objects. [Voprosy okhrany okruzhaiushcheĭ sredy pri stroitel'stve ob'ektov gazodobyvaiushcheĭ promyshlennosti],
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Gas pipelines, Permafrost beneath structures, Permafrost control, Environmental protection.

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Certain characteristics of the atmospheric surface layer above snow.
Elagina, L.G., et al, *Akademiia nauk SSSR. Izvestiya. Atmospheric and oceanic physics,* Apr. 1979, 14(9), p.652-655, Translated from Fizika atmosfery i okeana. 5 refs.
Koprov, V.M., Timanovskiĭ, D.F.
Snow cover effect, Air temperature, Boundary layer, Wind velocity, Humidity, Measuring instruments.

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Measuring the coefficients of directional light scattering in droplet and crystalline cloud media.
Pavlova, L.N., *Akademiia nauk SSSR. Izvestiya. Atmospheric and oceanic physics,* Apr. 1979, 14(9), p.698-701, Translated from Fizika atmosfery i okeana. 10 refs.
Cloud droplets, Ice crystals, Light scattering, Measurement.

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Thermal equilibrium in the upper layer of the earth's crust. [O teplovom ravnovesii v verkhnem sloe zemnoi kory].
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Earth crust, Heat balance, Boundary layer, Air temperature, Heat transfer, Solar radiation, Snow cover effect, Permafrost origin.

34-124
Variations of heat transfer between soil and atmosphere induced by engineering activities in tundra regions. [Izmenenie teploobmena gruntov s atmosferoi v zone tundry pri tekhnogennykh vozdeistviiakh].
Pavlov, A.V., et al, Tekhnogennye landshafty Severa i ikh rekul'tivatsiia (Landscapes affected by industrial activities in the North and their restoration) edited by A.V. Pavlov, Novosibirsk, Nauka, 1979, p.12-22, In Russian. 4 refs.
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Tundra, Ground ice, Heat transfer.

34-125
Shallow foundations on very thick moist earth fills. [Fundamenty melkogo zalozheniia na pereuvlazhnennykh nasypnykh gruntakh bol'shoi moshchnosti].
Kamenev, V.P., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura,* 1979, No.2, p.24-29, In Russian. 8 refs.
Krivorotov, A.P.
Earth fills, Foundations, Soil compaction, Soil water, Bearing strength.

34-126
Influence of thermal stresses on brittle failure of deep metal silos. [O vliianii temperaturnykh vozdeistvii na [illegible] khrupkogo razrusheniia glubokikh metallicheskikh silosov].
Shafrai, S.D., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura,* 1979, No.2, p.34-38, In Russian. 4 refs.
Metals, Brittleness, Frost resistance, Silos, Thermal stresses, Design.

34-127
Influence of water temperature and setting accelerators on hardening time of frost resistant cements. [Vliianie temperatury vody zatvoreniia i uskoritelia na sroki skhvatyvaniia khladostoikikh tsementnykh rastvorov].
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Tetel'min, V.V.
Cements, Frost resistance, Cement admixtures, Grouting, Rocks.

34-128
Shore protection structures in the Novosibirsk reservoir. [Sostoianie beregoukrepitel'nykh sooruzhenii Novosibirskogo vodokhranilishcha].
Raspopin, G.A., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura,* 1979, No.2, p.96-99, In Russian. 3 refs.
IUdin, A.V., Tatarov, I.IA.
Reservoirs, Shore erosion, Concrete structures, Slope protection, Concrete freezing, Concrete strength.

34-129
Use of polymer materials in embankment slope stabilization. [O primenenii polimernykh materialov dlia ukrepleniia otkosov zemlianogo polotna].
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Pal'kin, IU.S., Gadilev, E.O.
Roadbeds, Embankments, Permafrost beneath roads, Slope stability, Polymers.

34-130
Improving construction equipment. [Povysit' kachestvo stroitel'nykh mashin].
Garkavi, N.G., et al, *Mekhanizatsiia stroitel'stva,* Apr 1979, No.4, p.10-12, In Russian.
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Construction equipment, Excavation, Frozen ground.

34-131
Electrothermomechanical and electrodynamic excavation of grounds. [Elektrotermomekhanicheskoe i elektrodinamicheskoe razrushenie gruntov].
Protasov, IU.I., et al, *Mekhanizatsiia stroitel'stva,* Apr 1979, No.4, p.16-17, In Russian. 2 refs.
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Excavation.

34-132
Solar and net radiation over snow.
Petzold, D.E., *McGill University, Montreal. Department of Geography. Climatological research series,* Nov 1974, No.9, 77p., In English with French summary. 37 refs. For another version of this paper see 33-1482.
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Snow optics, Solar radiation, Forest land, Radiation balance, Heat transfer, Albedo.

34-133
Ice drift in the presence of ice hummocks.
Gorbunov, IU.A., et al, *U.S. Army Cold Regions Research and Engineering Laboratory,* July 1979, TL 718, 15p., ADB-040 348, For Russian original see 33-1510. 5 refs.
Losev, S.M., Timokhov, L.A.
Sea ice, Drift, Ice islands, Hummocks.
Patterns of sea ice flow were surveyed aerially. The results were used to determine the effects of grounded ice islands (known as "ice hummocks") on ice flow. Ice hummocks were found to change the direction and rate of flow in the surrounding area. "Straits" between ice hummocks were found to affect flow locally, but the density of ice hummocks in a given area was found to be more important on a large scale. Ice hummocks are found to have significant effects on the flow of sea ice, especially on velocity of flow.

34-134
Construction and performance of membrane encapsulated soil layers in Alaska.
Smith, N., *U.S. Army Cold Regions Research and Engineering Laboratory,* June 1979, CR 79-16, 27p., ADA-073 531, 17 refs.
Soil freezing, Cold weather tests, Frost protection, Soil water, Waterproofing, Frost heave.
In 1973 two membrane encapsulated soil layer (MESL) test sections were constructed into existing gravel surfaced roads at Elmendorf AFB and at Ft. Wainwright in Anchorage and Fairbanks, Alaska, respectively. The Elmendorf AFB MESL contains a silty clay soil and the Ft. Wainwright MESL contains a nonplastic silt. Both sections were constructed at soil moisture contents of approximately 2% to 3% below optimum for the CE-12 compactive effort. There were no indications of soil moisture migration during freezing in either test section, and after-thaw field California Bearing Ratio values were nearly equal to values measured before freezing. There is growing evidence of a slight increase in the overall soil moisture content in the Elmendorf AFB MESL, possibly from moisture entering through the single layer polyethylene sidewalls which were not treated with asphalt emulsion. There is good evidence that the membrane of the same section might have received damage during a soil sampling operation which allowed localized moisture infiltration. A two-layer polyethylene membrane used in the Ft. Wainwright MESL is considered a more positive moisture barrier than the single sheet and a justifiable added cost for permanent construction.

34-135
Engineer design test of Cold Regions Research and Engineering Laboratory (CRREL) shelter.
Dollahite, M.C., Fort Greely, Alaska, Cold Regions Test Center, 1978, 97p., ADB-031 528L, Distribution limited to U.S. Government agencies only.
Cold weather performance, Low temperature tests, Portable shelters, Utilities, Safety.

34-136
Freezing problems associated with spray irrigation of wastewater during the winter.
Bouzoun, J.R., *U.S. Army Cold Regions Research and Engineering Laboratory,* May 1979, SR 79-12, 12p., ADA-070 031, 5 refs.
Waste treatment, Water treatment, Waste disposal, Irrigation, Ice prevention.
During the winters of 1975-76, 1976-77 and 1977-78, biologically treated wastewater was applied to land in West Dover, Vermont. The wastewater was applied using the spray irrigation method at ambient temperatures as low as 0F. During the first winter, freezing was a major problem. Modified spray nozzles that were less susceptible to freezing were installed at both the low points and high points of the aboveground spray laterals. During the second and third winters, ice buildup along the spray laterals, particularly in the vicinity of the spray nozzles, caused serious damage to the pipes. Many man-hours were required to cut the ice repeatedly from the laterals. As an experiment to alleviate the problem, several 30- to 36-in risers were installed at an angle of approximately 30 degrees from the vertical on two of the spray laterals during the winter of 1977-78. They functioned well enough to warrant future installation on the entire system of spray laterals.

34-137
Drainage network analysis of a subarctic watershed. Caribou-Poker Creeks research watershed, interior Alaska.
Bredthauer, S.R., et al, *U.S. Army Cold Regions Research and Engineering Laboratory,* June 1979, SR 79-19, 9p., ADA-073 595, 14 refs.
Hoch, D.
Watersheds, Drainage, Slope processes, Permafrost.
A Strahler stream order analysis and an exterior link length distribution analysis were made of the Caribou-Poker Creeks Research Watershed near Fairbanks, Alaska. The drainage network map used for analysis was produced using a 1:2250 scale aerial photograph mosaic. Low drainage densities characterize the basins. Bifurcation ratios indicate that the overall drainage network is not dominated by strong geologic controls. Statistical analysis indicates that bifurcating source links and tributary source links do not belong to the same length population, a characteristic shared by watersheds in other climatic regions of the world. Additional analysis indicates that exterior links originating on permafrost slopes tend to be shorter than those originating on non-permafrost, well-drained slopes.

34-138
Infrared thermography of buildings: 1977 Coast Guard survey.
Marshall, S.J., *U.S. Army Cold Regions Research and Engineering Laboratory,* June 1979, SR 79-20, 40p., ADA-073 596, 9 refs.
Buildings, Heat loss, Infrared photography, Windows.
An IRTB (infrared thermography of buildings) field survey, producing 631 thermograms, 127 photographs, and weather data, was conducted during a 14-day study of 10 Coast Guard stations in Maine, New Hampshire and Massachusetts. This report discusses how the survey was initiated and performed with emphasis on details for the benefit of the reader wishing to plan a survey. One hundred twenty selected thermograms and photographs in this report illustrate many types of heat loss and compare thermally ineffective doors and windows with units designated as standards for thermal effectiveness. Radiator heat leakage through walls, mottled moisture patterns on brick walls, infiltration patterns on glass, and poorly covered openings are illustrated. Thermograms of severe heat losses through glass doors, glass transoms, and glass wall panels are also included, and several solutions for individual heat loss problems, such as fiberglass garage doors and porcelain insulated panels, are suggested. Unanticipated survey problems, such as difficulties in obtaining photographs to compare with thermographically discovered [illegible] survey techniques for inclement weather, are also discussed.

34-139
Application of heat pipes on the Trans-Alaska Pipeline.
Heuer, C.E., *U.S. Army Cold Regions Research and Engineering Laboratory,* July 1979, SR 79-26, 27p., ADA-073 597, 26 refs.
Pipelines, Heat pipes, Heat transfer.
The application of heat pipes on the Trans-Alaska Pipeline is reviewed. The subjects addressed include the general functioning of a heat pipe, the specific heat pipe design used, the different situations where heat pipes were employed, the methods used to develop the heat pipe design, the methods used to monitor the operating heat pipes, and the performance of the heat pipes. The discussion is qualitative in nature. Quantitative information is largely omitted to allow coverage of a broad area and because it may be considered proprietary. Nevertheless, the information presented here should give a good appreciation of the quality and complexity of the heat pipe design. The information should also be useful in developing heat pipes for use in other cold regions applications.

34-140
Arun LNG plant onstream in Indonesia.
Inman, H., et al, *Pipeline and gas journal,* June 1979, 206(7), p.22-26.
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Liquefied gases, Natural gas, Manufacturing, Refrigeration, Gas production.

34-141
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Venendaal, B., *Pipeline and gas journal,* June 1979, 206(7), p.28-38.
Natural gas, Liquefied gases, Pipelines, Ice prevention, Low temperature tests.

34-142
Plow attachment for snow blower.
De Brito, W.A., *U.S. Patent Office. Patent,* May 17, 1977, 6 col. USP-4,023,287.
Snow removal.

34-143
Snow remover.
Lazarecky, V., *U.S. Patent Office. Patent,* July 5, 1977, 6 col. USP-4,0[illegible],055.
Snow removal.

34-144
Heated snow shovel.
Highes, J.F., Jr., *U.S. Patent Office. Patent*, July 12, 1977, 4 col. USP-4,034,489.
Snow removal, Electric heating.

34-145
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Walkotten, W.J., *U.S. Patent Office. Patent*, Aug. 2, 1977, 4 col. USP-4,038,875.
Permafrost samplers, Cryogenic soils, Frozen ground, Thermal regime, Stability.

34-146
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Chaney, P.E., et al, *U.S. Patent Office. Patent*, Aug 9, 1977, 6 col. USP 4,040,262.
Morgan, G.W.
Anchors, Ice sheets, Stabilization, Offshore drilling, Polar regions.

34-147
Hydraulically operated front and rear wing hangers for snow plows.
Farrell, E.A., *U.S. Patent Office. Patent*, Sep. 6, 1977, 10 col. USP-4,045,892.
Snow removal, Hydraulic structures.

34-148
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Arny, D.C., et al, *U.S. Patent Office. Patent*, Sep. 6, 1977, 4 col. USP-4,045,910.
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Frost action, Vegetation, Countermeasures, Bacteria, Frost resistance.

34-149
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Hoeman, T.E., et al, *U.S. Patent Office. Patent*, Oct. 18, 1977, 8 col. USP-4,054,158.
Fockler, D.D.
Thermal insulation, Pipeline insulation.

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Magenheim, B., *U.S. Patent Office. Patent*, Oct. 18, 1977, 6 col. USP-4,054,255.
Ice detection, Microwaves, Aircraft icing.

34-151
Oil spill countermeasures for the southern Beaufort Sea.
Logan, W.J., et al, *Canada. Beaufort Sea Project. Technical report*, Dec. 1975, No.31a, 126p., Refs. p.124-126.
Thornton, D.E., Ross, S.L.
Oil spills, Oil wells, Exploration, Sea ice distribution, Remote sensing, Pollution, Countermeasures, Ice conditions, Beaufort Sea.

34-152
Evaluation of freeze-thaw durability of stabilized materials.
Thompson, M.R., et al, *Transportation research record*, 1976, No.612, p.62-70, 14 refs.
Dempsey, B.J.
Freeze thaw cycles, Soil cement, Aggregates, Pavements, Soil strength.

34-153
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Baker, M.C., *National Research Council, Canada. Division of Building Research. Proceedings*, Sep. 1976, No.2, 8p.
Stresses, Deformation, Cracking (fracturing), Joints (junctions), Fatigue (materials), Buildings, Thermal factors, Time factor, Moisture factors.

34-154
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Hutcheon, N.B., *National Research Council, Canada. Division of Building Research. Proceedings*, Sep. 1976, No.2, 10p.
Buildings, Cracking (fracturing), Loads (forces), Thermal effects, Stress strain diagrams, Deformation, Brittleness, Strength, Moisture content.

34-155
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Handegord, G.O., *National Research Council, Canada. Division of Building Research. Proceedings*, Sep. 1976, No.2, 7p.
Construction materials, Deformation, Moisture factors, Buildings, Vapor pressure, Thermal factors.

34-157
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Plewes, W.G., *National Research Council, Canada. Division of Building Research. Proceedings*, Sep. 1976, No.2, 11p., 4 refs.
Buildings, Cracking (fracturing), Deformation, Loads (forces), Thermal factors.

34-158
Building deformations—vertical movements.
Plewes, W.G., *National Research Council, Canada. Division of Building Research. Proceedings*, Sep. 1976, No.2, 9p., 5 refs.
Buildings, Deformation, Loads (forces), Walls, Thermal factors.

34-159
Deformation due to foundation movements.
Crawford, C.B., *National Research Council, Canada. Division of Building Research. Proceedings*, Sep. 1976, No.2, 7p.
Buildings, Deformation, Cracking (fracturing), Foundations, Settlement (structural), Loads (forces), Stresses, Frost heave, Permafrost beneath structures.

34-160
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Latta, J.K., *National Research Council, Canada. Division of Building Research. Proceedings*, Sep. 1976, No.2, 9p.
Buildings, Deformation, Joints (junctions), Cracking (fracturing), Settlement (structural), Construction materials, Thermal factors, Stresses, Strains.

34-161
Design of weathertight joints.
Latta, J.K., *National Research Council, Canada. Division of Building Research. Proceedings*, Sep. 1976, No.2, 8p.
Joints (junctions), Sealing, Wind pressure, Moisture, Design, Buildings.

34-162
Recognition of joints in the system.
Baker, M.C., *National Research Council, Canada. Division of Building Research. Proceedings*, Sep. 1976, No.2, 9p.
Joints (junctions), Walls, Compressive properties, Thermal effects, Buildings, Moisture factors, Sealing.

34-163
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Latta, J.K., *National Research Council, Canada. Division of Building Research. Proceedings*, Sep. 1976, No.2, Canadian building digest, No.171, Apr. 1975, 4p.
Buildings, Deformation, Construction, Accuracy.

34-164
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Handegord, G.O., et al, *National Research Council, Canada. Division of Building Research. Proceedings*, Sep. 1976, No.2, Canadian building digest, No.155, 1973, 4p., 3 refs.
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Buildings, Joints (junctions), Sealing, Thermal effects, Design.

34-165
LNG transport in Parry Channel: possible environmental hazards.
Smiley, B.D., et al, Sidney, B.C., Canada, Institute of Ocean Sciences, 1979, 47p., 60 refs.
Milne, A.R.
Ice breaking, Ice navigation, Ecology, Environmental impact, Ice cover distribution, Drift, Marine biology, Canada—Northwest Territories—Parry Channel.

34-166
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Kuritsyn, IU.P., *Stroitel'stvo truboprovodov*, June 1979, No.6, p.6-8, In Russian.
Petroleum industry, Buildings, Pipelines, Construction equipment, Permafrost beneath structures, Swamps, Construction materials.

34-167
Reconstruction of enterprises for the expansion of complete unit construction. [Zadachi rekonstruktsii predpriiatiĭ dlia rasshireniia masshtabov komplektnoblochnogo stroitel'stva],
Drobiazko, V.A., *Stroitel'stvo truboprovodov*, June 1979, No.6, p.10-11, In Russian.
Petroleum industry, Residential buildings, Industrial buildings, Prefabrication, Panels, Pipelines.

34-168
Planning and prospects of the development of residential construction industry. [Planirovanie i perspektivy razvitiia zhilishchnogo stroitel'stva v otrasli],
Sokolov, A.V., *Stroitel'stvo truboprovodov*, June 1979, No.6, p.11-12, In Russian.
Residential buildings, Prefabrication, Permafrost beneath structures, Economic analysis.

34-169
Evaluating social and economic effectiveness of mobile residential complexes. [Otsenka sotsial'no-ekonomicheskoĭ effektivnosti mobil'nykh zhilykh kompleksov],
Gaĭdukova, N.I., *Stroitel'stvo truboprovodov*, June 1979, No.6, p.16-17, In Russian.
Residential buildings, Swamps, Taiga, Permafrost beneath structures, Economic analysis.

34-170
Influence of moisture migration on ground freezing rate. [Vliianie migratsii vlagi na skorost' promerzaniia gruntov],
Krivoshein, B.L., *Stroitel'stvo truboprovodov*, June 1979, No.6, p.19-21, In Russian. 7 refs.
Soil freezing, Freezing rate, Frost penetration, Soil water migration, Heat transfer, Analysis (mathematics).

34-171
Heating pipeline joints. [Podogrev stykov trub],
Prilipko, V.M., *Stroitel'stvo truboprovodov*, June 1979, No.6, p.29, In Russian.
Pipelines, Joints (junctions), Welding.

34-172
Subdividing linear parts of main pipelines into sections of different categories. [Delenie lineĭnoĭ chasti magistral'nykh truboprovodov na uchastki razlichnykh kategoriĭ],
Borodavkin, P.P., et al, *Stroitel'stvo truboprovodov*, June 1979, No.6, p.31-32, In Russian.
Ivantsov, O.M.
Pipelines, Swamps, River crossings, Permafrost beneath structures.

34-173
Optimal design of steel frames for modular buildings in the Far North. [Optimizatsiia konstruktivnogo resheniia stal'nogo karkasa sborno-razbornogo zdaniia dlia Kraĭnego Severa],
Volovik, A.IA., et al, *Stroitel'stvo v raĭonakh Vostochnoĭ Sibiri i Kraĭnego Severa*, 1972, Vol.24, p.3-15, In Russian. 5 refs.
Malyshkina, I.N.
Prefabrication, Permafrost beneath structures, Panels, Steel structures, Modular construction, Building frames, Design.

34-174
Selection of design schemes for standard industrial buildings. [K vyboru konstruktivnykh skhem inventarnykh promzdaniĭ],
Arshinin, A.A., *Stroitel'stvo v raĭonakh Vostochnoĭ Sibiri i Kraĭnego Severa*, 1972, Vol.24, p.16-21, In Russian.
Industrial buildings, Permafrost beneath structures, Standards, Design, Construction materials, Construction equipment.

34-175
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Malyshkina, I.N.
Industrial buildings, Prefabrication, Permafrost beneath structures, Foundations, Reinforced concretes, Steel structures, Panels, Thermal insulation.

34-176
Modular apartment buildings with "packet" type cells. [Sborno-razbornye zdaniia s primeneniem ob'emnykh blokov tipe "paket"],
Lazhintsev, V.I., *Stroitel'stvo v raĭonakh Vostochnoĭ Sibiri i Kraĭnego Severa*, 1972, Vol.24, p.33-42, In Russian.
Prefabrication, Residential buildings, Thermal insulation, Windows, Heat loss, Permafrost beneath structures, Modular construction.

34-177
Experimental study of the "packet" type apartment cells. [Eksperimental'noe issledovanie ob"emnykh blokov tima "paket"].
Lazhintsev, V.I., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa,* 1972, Vol.24, p.43-53, In Russian.
Heat loss, Residential buildings, Prefabrication, Thermal insulation, Permafrost beneath structures, Modular construction, Design.

34-178
Sectional buildings with bearing panels made of effective materials. [Sbornoe zdanie iz nesushchikh panelei s primeneniem effektivnykh materialov].
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Kvach, I.K.
Residential buildings, Permafrost beneath structures, Foundations, Prefabrication, Panels, Walls, Roofs, Aluminum, Thermal insulation, Heating, Ventilation.

34-179
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34-180
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Petrusev, B.V., Shevchenko, V.I.
Reinforced concretes, Concrete admixtures, Frost resistance, Concrete strength, Concrete freezing.

34-181
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Industrial buildings, Standards, Large panel buildings, Panels, Aluminum.

34-182
Technical and economic analysis of different construction materials in modular buildings. [Tekhniko-ekonomicheskii analiz primeneniia razlichnykh materialov v konstruktsiiakh sborno-razbornykh zdanii].
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Large panel buildings, Panels, Thermal insulation, Transportation, Cost analysis, Construction materials.

34-183
Determining optimal service life of modular buildings. [Opredelenie optimal'nykh srokov sluzhby sborno-razbornykh zdanii].
Pal'tsevich, L.P., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa,* 1972, Vol.24, p.98-107, In Russian.
Buildings, Prefabrication, Panels, Permafrost beneath structures, Cold weather performance.

34-184
Requirements for structural elements of sectional buildings determined by the conditions of their transportation and assembly by helicopter. [Trebovaniia k konstruktsiiam sborno-razbornykh zdanii, opredeliaemye usloviiami ikh transportirovaniia i montazha vertoletami].
Bogdanov, V.A., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa,* 1972, Vol.24, p.108-120, In Russian.
Buildings, Transportation, Helicopters, Prefabrication, Permafrost beneath structures.

34-185
Providing standard buildings for construction enterprises in the North. [Osnashchenie stroitel'nykh organizatsii Severa inventarnymi zdaniiami].
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Kotenko, L.A., Koposhko, V.S.
Buildings, Standards, Permafrost beneath structures, Design.

34-186
Distribution of factories producing sectional buildings. [Vybor variantov razmeshcheniia zavodov po proizvodstvu sborno-razbornykh domov].
Pal'tsevich, L.P., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa,* 1972, Vol.24, p.137-142, In Russian.
Kuzina, Z.G.
Buildings, Prefabrication, Industrial plants, Distribution.

34-187
Present state of translucent enclosures in industrial buildings of Yakutia. [Sovremennoe sostoianie svetoprozrachnykh ograzhdenii promyshlennykh zdanii v IAkutii].
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Kuzema, G.P.
Industrial buildings, Permafrost beneath structures, Walls, Windows, Heat loss, Hoarfrost, Light transmission.

34-188
Economic effectiveness of using high thermal insulation windows in residential buildings of the North. [Ekonomicheskaia effektivnost' primeneniia okon povyshennoi teplozashchity dlia zhilykh zdanii v severnykh raionakh strany].
Kuzema, I.G., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa,* 1972, Vol.24, p.153-165, In Russian. 10 refs.
Kuzema, G.P.
Residential buildings, Windows, Thermal insulation, Heat loss, Cost analysis.

34-189
Studying the combined effect of low air temperature and wind pressure on thermal regime of walls. [Issledovanie vliianiia sochetaniia nizkoi temperatury vozdukha s vetrovym naporom na teplovoi rezhim steny].
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Buildings, Walls, Thermal regime, Wind pressure, Freezing, Analysis (mathematics).

34-190
Economic effectiveness of antifreeze admixtures. [Ekonomicheskaia effektivnost' primeneniia protivomoroznykh dobavok].
Modylevskii, A.B., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa,* 1972, Vol.24, p.177-185, In Russian.
Zamoshchik, A.I., Olovina, I.N., Koval'skaia, N.N.
Winter concreting, Concrete admixtures, Frost resistance, Concrete strength, Concrete freezing, Concrete hardening.

34-191
Silicate cements and dense concretes on a base of nepheline slag and phosphorite residues. [Silikatnoe viazhushchee i plotnye betony na baze nefelinovogo shlama i fosforitovykh khvostov].
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Leonov, B.IA.
Concretes, Cements, Concrete aggregates, Wastes, Concrete strength, Frost resistance.

34-192
New powerful pneumatic drift. [Novyi moshchnyi pnevmoproboinik].
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Klimashko, V.V., Naboko, V.P.
Mining, Tunneling (excavation), Pile driving, Excavation, Underground facilities.

34-193
Tower cranes used by Glavmosstroi in large panel construction. [Ekspluatatsiia bashennykh kranov v ob"edinenii krupnopanel'nogo domostroeniia Glavmosstroia].
Blokhin, V.V., *Mekhanizatsiia stroitel'stva,* July 1979, No.7, p.11-13, In Russian.
Cranes (hoists), Large panel buildings, Panel installation.

34-194
Noise accompanying the breakup of ice by the hull of an icebreaker.
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Gavrilo, V.P.
Ice breaking, Noise (sound), Vibration, Sea ice, Icebreakers, Frequency analysis.

34-195
Methods of fastening reinforced concrete supports of overhead power lines in weak ground. [Progressivnye sposoby zakrepleniia zhelezobetonnykh opor VL v slabykh gruntakh].
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Concrete structures, Power line supports, Swamps, Anchors.

34-196
Wall panels with polyurethane foam thermal insulation used in power plant construction. [Primenenie stenovykh panelei s uteplitelem iz penopoliuretana v energeticheskom stroitel'stve].
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Trincher, IU.K., Romanenkov, I.G.
Electric power, Walls, Panels, Thermal insulation, Cellular plastics.

34-197
Layer-by-layer concreting in dam construction under severe climatic conditions. [Posloinoe betonirovanie pri vozvedenii plotin v surovykh klimaticheskikh usloviiakh].
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Panfilov V.S.
Winter concreting, Concrete structures, Dams, Concrete placing, Hydraulic structures.

34-198
Cement-silicate solutions used in building grout curtains under complex hydrogeological conditions. [Tsementno-silikatnye rastvory dlia sozdaniia protivofil'tratsionnykh zaves v slozhnykh gidrogeologicheskikh usloviiakh].
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Tetel'min, V.V.
Hydraulic structures, Frozen ground, Cements, Cement admixtures, Grouting.

34-199
Methods of studying and accounting for interactions between two ductless heat pipes laid in permafrost. [Metodika ucheta i issledovanie vzaimnogo vliianiia dvukh teploprovodov pri beskanal'noi prokladke v merzlote].
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Heat pipes, Permafrost heat transfer, Pipe laying, Pipelines, Heat transfer.

34-200
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Sea ice, Ice salinity, Climatology, Icebergs.
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34-201
Phosphorus regeneration in fresh-water paramecia.
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Dillon, R.D.
Bacteria, Nutrient cycle, Tundra, Ecosystems, Water temperature, Polar regions, Microbiology, United States—Alaska—Barrow.

34-202
Feasibility of caribou winter habitat analysis using satellite data.
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Tundra, Animals, Winter, LANDSAT, Lichens, Mapping, Computer applications.

34-203
Sediment characteristics of some small temperate glaciers.
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Mountain glaciers, Sediments, Moraines, Glacial deposits, Alpine glaciation, Glacier flow.

34-204
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Air cushion vehicles, Ice breaking, Ice navigation, River crossings.

34-205
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Ice breaking, Air cushion vehicles, Ice navigation, Transportation.

34-206
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Tennyson, R.C., et al, *National Research Council, Canada. Associate Committee on Air Cushion Technology. Technical report*, Jan. 1977, No.2/77, p.44-59, 1 ref.
Smailys, A.A.
Air cushion vehicles, Protective coatings, Abrasion, Low temperature tests, Tensile properties, Temperature effects.

34-207
Requirements for the La Crete ferry—an A.C.V. proposal.
Rogers, A.R., *National Research Council, Canada. Associate Committee on Air Cushion Technology. Technical report*, Jan. 1977, No.2/77, p.66-73.
River crossings, Ice conditions, Air cushion vehicles, River ice.

34-208
Continuing advances with air cushion icebreaking.
Ball, M.A., *National Research Council, Canada. Associate Committee on Air Cushion Technology. Technical report*, Jan. 1977, No.2/77, p.105-132, 6 refs.
Ice cover thickness, Air cushion vehicles, Ice breaking, Ice cover strength, Ship icing, Ice navigation, Tests, Wave propagation.

34-209
High-speed method of air cushion icebreaking.
Robertson, B.W., *National Research Council, Canada. Associate Committee on Air Cushion Technology. Technical report*, Jan. 1977, No.2/77, p.133-140, 4 refs.
Ice breaking, Air cushion vehicles, Ice cover strength, Wave propagation, Water waves, Compressive properties, Velocity, Tests.

34-210
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Hall, T.N., *National Research Council, Canada. Associate Committee on Air Cushion Technology. Technical report*, Jan. 1977, No.2/77, p.141-146.
Ice breaking, Air cushion vehicles, Trafficability, Economic analysis.

34-211
Yukon ferry operation.
Ireland, J.E., *National Research Council, Canada. Associate Committee on Air Cushion Technology. Technical report*, Jan. 1977, No.2/77, p.176-179.
Air cushion vehicles, River crossings, Ice conditions, Transportation.

34-212
Some aspects of frost heave problems in road foundations.
Jagannatha Rao, P., *Indian Roads Congress. Journal*, Aug. 1976, 37(2), p.293-307.
Frost heave, Frost action, Roadbeds, Soil freezing, Ice lenses, Permeability, Soil moisture migration, Thermal factors, Salinity, Foundations.

34-213
Studies of physico-technical problems of the North (rock mechanics and thermal properties, materials technology). [Issledovaniia po fiziko-tekhnicheskim problemam Severa (Gornaia mekhanika i teplofizika, materialovedenie)].
Bondarev, E.A., ed, Yakutsk, IAkutskiĭ filial SO AN SSSR, 1975, 145p., In Russian. For selected articles see 34-214 through 34-234. Refs. passim.
DLC TN109.177
Mining, Coal, Placer mining, Permafrost thermal properties, Mine shafts, Underground facilities, Heat transfer, Drills, Frozen rock temperature, Creep, Power line icing, Radio communication, Permafrost physics, Wave propagation, Radio waves, Ventilation.

34-214
Results of studying coal mining conditions in the North-East. [Nekotorye rezul'taty izucheniia uslovii razrabotki ugol'nykh mestorozhdenii Severo-Vostoka].
Vikulov, M.A., et al, Issledovaniia po fiziko-tekhnicheskim problemam Severa (Gornaia mekhanika i teplofizika, materialovedeniie) (Studies of physico-technical problems of the North (rock mechanics and thermal properties, materials technology)) edited by E.A. Bondarev, Yakutsk, IAkutskiĭ filial SO AN SSSR, 1975, p.3-8, In Russian.
Kirzhner, F.M.
DLC TN109.177
Mining, Coal, Ground ice, Permafrost structure, Excavation.

34-215
Thermal regime of Indigirka placer mines. [Teplovoĭ rezhim rossypnykh shakt Indigirki].
Sherstov, V.A., et al, Issledovaniia po fiziko-tekhnicheskim problemam Severa (Gornaia mekhanika i teplofizika, materialovedeniie) (Studies of physico-technical problems of the North (rock mechanics and thermal properties, materials technology)) edited by E.A. Bondarev, Yakutsk, IAkutskiĭ filial SO AN SSSR, 1975, p.9-16, In Russian. 2 refs.
Galkin, A.F.
DLC TN109.177
Placer mining, Frozen rock temperature, Thermal regime, Mine shafts, Ventilation.

34-216
Testing plastic thermoinsulative covers in placer mines. [Nekotorye rezul'taty ispytaniĭ plenochnoĭ teploizoliatsii v rossypnykh shakhtakh].
Sherstov, V.A., et al, Issledovaniia po fiziko-tekhnicheskim problemam Severa (Gornaia mekhanika i teplofizika, materialovedeniie) (Studies of physico-technical problems of the North (rock mechanics and thermal properties, materials technology)) edited by E.A. Bondarev, Yakutsk, IAkutskiĭ filial SO AN SSSR, 1975, p.17-21, In Russian. 1 ref.
Enkashev, M.M.
DLC TN109.177
Placer mining, Permafrost thermal properties, Permafrost control, Thermal insulation Plastics, Ventilation.

34-217
Heat transfer between underground structures and surrounding frozen grounds. [Teploobmen podzemnogo sooruzheniia s okruzhaiushchim merzlym gruntom].
Kapitonova, T.A., et al, Issledovaniia po fiziko-tekhnicheskim problemam Severa (Gornaia mekhanika i teplofizika, materialovedeniie) (Studies of physico-technical problems of the North (rock mechanics and thermal properties, materials technology)) edited by E.A. Bondarev, Yakutsk, IAkutskiĭ filial SO AN SSSR, 1975, p.22-29, In Russian. 2 refs.
Popov, F.S.
DLC TN109.177
Placer mining, Permafrost, Mine shafts, Thermal regime, Ventilation, Heat transfer, Design.

34-218
Classification of the means of radio communication in mines. [Klassifikatsiia sredstv shakhtnoĭ radiosviazi].
Elshin, V.K., et al, Issledovaniia po fiziko-tekhnicheskim problemam Severa (Gornaia mekhanika i teplofizika, materialovedeniie) (Studies of physico-technical problems of the North (rock mechanics and thermal properties, materials technology)) edited by E.A. Bondarev, Yakutsk, IAkutskiĭ filial SO AN SSSR, 1975, p.30-36, In Russian. 6 refs.
Korennov, B.I., Nosik, V.F.
DLC TN109.177
Mining, Radio communication, Permafrost physics, Radio waves, Wave propagation.

34-219
Results of testing new diamond drilling bits in Southern Yakutia. [O pervykh rezul'tatakh ispytaniĭ novykh burovykh almaznykh koronok v usloviiakh IUzhnoĭ IAkutii].
Antipin, I.N., et al, Issledovaniia po fiziko-tekhnicheskim problemam Severa (Gornaia mekhanika i teplofizika, materialovedeniie) (Studies of physico-technical problems of the North (rock mechanics and thermal properties, materials technology)) edited by E.A. Bondarev, Yakutsk, IAkutskiĭ filial SO AN SSSR, 1975, p.37-40, In Russian.
Efimov, G.I., Bugaev, A.A., Ivanov, V.V.
DLC TN109.177
Mining, Permafrost, Drilling, Drills, Diamond bits.

34-220
Axisymmetric freezing and creep of water-saturated rocks. [Osesimmetrichnoe smerzanie i polzuchest' vlagonasyshchennykh porod].
Dubina, M.M., et al, Issledovaniia po fiziko-tekhnicheskim problemam Severa (Gornaia mekhanika i teplofizika, materialovedeniie) (Studies of physico-technical problems of the North (rock mechanics and thermal properties, materials technology)) edited by E.A. Bondarev, Yakutsk, IAkutskiĭ filial SO AN SSSR, 1975, p.44-48, In Russian. 3 refs.
Krasovitskiĭ, B.A., Lozovskiĭ, A.S.
DLC TN109.177
Mining, Mine shafts, Ground thawing, Frost penetration, Frozen ground strength, Ground ice, Permafrost heat transfer, Permafrost mass transfer, Analysis (mathematics).

34-221
Numerical solution of problems of soil creep with phase transformations. [Chislennoe reshenie zadachi polzuchesti s fazovym perekhodom].
Lozovskiĭ, A.S., Issledovaniia po fiziko-tekhnicheskim problemam Severa (Gornaia mekhanika i teplofizika, materialovedeniie) (Studies of physico-technical problems of the North (rock mechanics and thermal properties, materials technology)) edited by E.A. Bondarev, Yakutsk, IAkutskiĭ filial SO AN SSSR, 1975, p.49-53, In Russian. 7 refs.
DLC TN109.177
Mining, Mine shafts, Walls, Ground thawing, Frozen ground strength, Permafrost, Analysis (mathematics).

34-222
Evaluating the influence of natural conditions on temperature regime of permafrost surrounding mining excavations. [Otsenka vliianiia estestvennykh uslovii na temperaturnyĭ rezhim okruzhaiushchikh vyrabotku mnogoletnemerzlykh gornykh porod].
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DLC TN109.177
Mine shafts, Permafrost, Walls, Heat transfer, Mass transfer, Frozen rock temperature, Permafrost thermal properties.

34-223
Influence of mining conditions on temperature regime of permafrost around separate excavations. [O vliianii uslovii ekspluatatsii na temperaturnyi rezhim gornykh porod vokrug odinochnoi vyrabotki, proidennoi v mnogoletnei merzlote].
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DLC TN109.I77
Mining, Mine shafts, Permafrost thermal properties, Heat transfer, Heat loss.

34-224
Thermal regime of permafrost beneath structures with foundations on fill. [Teplovoi rezhim merzlykh porod pod sooruzheniem na podsypke].
Mal'kov, IU.K., et al, Issledovaniia po fiziko-tekhnicheskim problemam Severa (Gornaia mekhanika i teplofizika, materialovedenie) (Studies of physico-technical problems of the North (rock mechanics and thermal properties, materials technology)) edited by E.A. Bondarev, Yakutsk, IAkutskii filial SO AN SSSR, 1975, p.71-76, In Russian. 6 refs.
Kurilko, A.S., Popkov, A.A.
DLC TN109.I77
Buildings, Foundations, Rock fills, Permafrost beneath structures, Thermal regime, Models.

34-225
Solution of a problem of freezing of an unlimited slab of fine grained material, allowing for moisture migration. [Reshenie zadachi o promerzanii neogranichennoi plastiny dispersnogo materiala s uchetom migratsii vlagi].
Kurilko, A.S., et al, Issledovaniia po fiziko-tekhnicheskim problemam Severa (Gornaia mekhanika i teplofizika, materialovedeniie) (Studies of physico-technical problems of the North (rock mechanics and thermal properties, materials technology)) edited by E.A. Bondarev, Yakutsk, IAkutskii filial SO AN SSSR, 1975, p.77-82, In Russian. 2 refs.
Kozhevnikov, N.N.
DLC TN109.I77
Frozen fines, Frost penetration, Soil water migration, Phase transformations, Analysis (mathematics).

34-226
Reestablishment of temperature field in rocks around excavations after warm air flow is discontinued. [O vosstanovlenii temperaturnogo polia porod vokrug vyrabotok posle prekrashcheniia podachi teplogo vozdukha].
Mal'kov, IU.K., et al, Issledovaniia po fiziko-tekhnicheskim problemam Severa (Gornaia mekhanika i teplofizika, materialovedeniie) (Studies of physico-technical problems of the North (rock mechanics and thermal properties, materials technology)) edited by E.A. Bondarev, Yakutsk, IAkutskii filial SO AN SSSR, 1975, p.83-89, In Russian. 4 refs.
Naumova, V.S.
DLC TN109.177
Mining, Mine shafts, Frozen rock temperature, Ventilation, Models, Permafrost control.

34-227
Similarity criterion for freezing processes in dispersed media. [Ob odnom kriterii podobiia dlia protsessov promerzaniia v dispersnykh sredakh].
Kozhevnikov, N.N., Issledovaniia po fiziko-tekhnicheskim problemam Severa (Gornaia mekhanika i teplofizika, materialovedeniie) (Studies of physico-technical problems of the North (rock mechanics and thermal properties, materials technology)) edited by E.A. Bondarev, Yakutsk, IAkutskii filial SO AN SSSR, 1975, p.90-93, In Russian. 1 ref.
DLC TN109.177
Frozen fines, Frost penetration, Mathematical models, Phase transformations, Heat transfer, Mass transfer.

34-228
Heat conductivity of frozen water solutions of gases. [Teploprovodnost' zamorozhennykh vodnykh rastvorov gazov].
Groisman, A.G., et al, Issledovaniia po fiziko-tekhnicheskim problemam Severa (Gornaia mekhanika i teplofizika, materialovedeniie) (Studies of physico-technical problems of the North (rock mechanics and thermal properties, materials technology)) edited by E.A. Bondarev, Yakutsk, IAkutskii filial SO AN SSSR, 1975, p.103-107, In Russian. 1 ref.
Hoeva, M.G.
DLC TN109.I77
Gases, Hydrates, Solutions, Ice, Thermal conductivity.

34-229
Thermophysical characteristics of moisture and gas-saturated sandstones at naturally low temperatures. [Teplofizicheskie kharakteristiki vlago- i gazonasyshchennykh peschanikov pri estestvenno nizkikh temperaturakh].
Groisman, A.G., et al, Issledovaniia po fiziko-tekhnicheskim problemam Severa (Gornaia mekhanika i teplofizika, materialovedeniie) (Studies of physico-technical problems of the North (rock mechanics and thermal properties, materials technology)) edited by E.A. Bondarev, Yakutsk, IAkutskii filial SO AN SSSR, 1975, p.106-107, In Russian. 1 ref.
Platonova, N.N.
DLC TN109.I77
Sands, Soil water, Natural gas, Frost penetration, Thermal regime, Physical properties.

34-230
New method of forecasting ice-hoarfrost deposits on power lines. [Novyi sposob prognozirovaniia gololedno-izmorozevykh otlozhenii na liniiakh elektroperedachi].
Kolmogorova, I.M., et al, Issledovaniia po fiziko-tekhnicheskim problemam Severa (Gornaia mekhanika i teplofizika, materialovedeniie) (Studies of physico-technical problems of the North (rock mechanics and thermal properties, materials technology)) edited by E.A. Bondarev, Yakutsk, IAkutskii filial SO AN SSSR, 1975, p.108-113, In Russian. 4 refs.
Slonov, I.A.
DLC TN109.177
Power line icing, Ice forecasting.

34-231
Reliability of the Yakutsk gas distribution system. [K voprosu nadezhnosti gazoraspredelitel'noi sistemy IAkutska].
L'vova, Z.M., Issledovaniia po fiziko-tekhnicheskim problemam Severa (Gornaia mekhanika i teplofizika, materialovedeniie) (Studies of physico-technical problems of the North (rock mechanics and thermal properties, materials technology)) edited by E.A. Bondarev, Yakutsk, IAkutskii filial SO AN SSSR, 1975, p.114-119, In Russian. 3 refs.
DLC TN109.177
Gas pipelines, Permafrost beneath structures, Pipeline freezing, Hydrates.

34-232
Resistance of ZOKhGSNA and ZOKhGSA steels at low temperatures. [K voprosu o treshchinostoikosti stalei ZOKhGSNA i ZOKhGSA pri nizkikh temperaturakh].
Vasil'ev, M.M., et al, Issledovaniia po fiziko-tekhnicheskim problemam Severa (Gornaia mekhanika i teplofizika, materialovedeniie) (Studies of physico-technical problems of the North (rock mechanics and thermal properties, materials technology)) edited by E.A. Bondarev, Yakutsk, IAkutskii filial SO AN SSSR, 1975, p.120-124, In Russian. 4 refs.
Guliaev, V.P., Sosin, T.S.
DLC TN109.177
Steel structures, Steels, Brittleness, Cracking (fracturing), Crack propagation, Cold weather performance.

34-233
Testing weldability of metals at subzero temperatures. [Ob ispytanii metallov na svarevamost' pri otritsatel'nykh temperaturakh].
Sleptsov, O.I., Issledovaniia po fiziko-tekhnicheskim problemam Severa (Gornaia mekhanika i teplofizika, materialovedeniie) (Studies of physico-technical problems of the North (rock mechanics and thermal properties, materials technology)) edited by E.A. Bondarev, Yakutsk, IAkutskii filial SO AN SSSR, 1975, p.125-128, In Russian. 3 refs.
DLC TN109.177
Metals, Welding, Joints (junctions), Steel structures, Brittleness, Cold weather performance.

34-234
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Cryogenic soils, Swamps, Peat, Mosses, Taiga, Land reclamation.

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Cryogenic soils, Lacustrine deposits, Clays, Soil formation, Taiga, Soil profiles, Swamps, Soil chemistry.

34-440
Evaluation and classification of soils in the Zeya-Bureya plain and areas adjacent to the BAM zone. [Raĭonirovanie i otsenka pochv Zeĭsko-Bureĭnskoĭ ravniny i raĭonov prilegaiushchikh k zone BAM],
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Cryogenic soils, Permafrost distribution, Soil formation, Mapping, Baykal Amur railroad.

34-441
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Cryogenic soils, Soil formation, Taiga, Soil profiles, Soil chemistry.

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River basins, Taiga, Landscape types, Soil formation, Soil profiles, Podsol, Cryogenic soils.

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Taiga, Soil formation, Cryogenic soils, Soil profiles, Podsol.

34-444
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Cryogenic soils, Soil erosion, Protective vegetation.

34-445
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Cryogenic soils, Soil erosion, Taiga, Environmental protection, Landscape types, Baykal Amur railroad.

34-446
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Taiga, Soil erosion.

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River basins, Water erosion, Cryogenic soils, Soil erosion, Land reclamation.

34-448
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Geocryology, Thermokarst, Soil erosion, Cryogenic soils, Ground ice, Solifluction.

34-449
Deflation of Barguzin Basin soils and economic utilization. [Defliatsiia pochv Barguzinskoi kotloviny i puti ikh ratsional'nogo ispol'zovaniia].
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Cryogenic soils, Wind erosion, Soil formation, Lacustrine deposits, Sands, Steppes, Protective vegetation, Forest strips.

34-450
Erosional vulnerability of taiga soils in the eastern BAM zone during economic development. [Erozionnaia uiazvimost' taezhnykh pochv zony BAM (Vostochnoi chasti) pri ikh sel'skokhoziaistvennom osvoenii].
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Taiga, Soil formation, Land development.

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Cryogenic soils, Meadow soils, Chernozem, Forest soils, Steppes.

34-452
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Cryogenic soils, Soil classification, Active layer, Permafrost depth, Taiga.

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Cryogenic soils, Taiga, Soil classification, Charts, Alassy, Chernozem.

34-454
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Forest soils, Steppes, Cryogenic soils, Permafrost depth, Soil formation, Soil profiles.

34-455
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Forest soils, Soil profiles, Podsol, Soil chemistry, Cryogenic soils.

34-456
Soil structure and types of farm lands in the grassy larch forests of the Krasnoyarsk area. [Struktura pochvennogo pokrova i tipologiia sel'skokhoziaistvennykh zemel' zony listvennykh travianykh lesov Krasnoiarskogo kraia].
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34-457
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Cryogenic soils, Saline soils, Chernozem, Soil profiles, Soil chemistry.

34-458
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34-459
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Cryogenic soils, Mountain soils, Forest soils, Soil formation, Heat transfer, Mass transfer.

34-460
Flood-induced transformations in soils. [Transformatsiia pochv pod vliianiem zatopleniia].
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Cryogenic soils, Flooding, Soil chemistry, Soil composition, Lakes.

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Influence of microorganisms on ferrous oxide dynamics in soils of the Angara River area. [Vliianie mikroorganizmov na dinamiku zakisnogo zheleza v pochvakh Priangar'ia].
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Cryogenic soils, Soil microbiology, Soil chemistry, Taiga.

34-462
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Cryogenic soils, Forest soils, Taiga, Soil formation, Permafrost depth, Soil profiles.

34-463
Hydrothermal regime of cryogenic sod-taiga soils (Yeravninskaya Basin, Buryat ASSR). [Gidrotermicheskii rezhim dernovo-taezhnykh merzlotnykh pochv Eravninskoi kotloviny (Buriatskaia ASSR)].
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Cryogenic soils, Hydrothermal processes, Permafrost depth, Soil temperature, Soil water.

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Taiga, Soil formation.

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Thermal stress intensity factors for a fixed strip containing edge cracks. [Koeffitsienty intensivnosti temperaturnykh napriazhenii v zashchemlennoi polose s kraevymi treshchinami].
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Plates, Thermal stresses, Cracking (fracturing), Design.

34-467
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Thermal stresses, Cracking (fracturing), Design.

34-468
Approximate thermal stress analysis of a concrete structure, erected block-by-block, allowing for concrete creep. [Priblizhennyĭ metod rashcheta termonapriazhennogo sostoianiia (s uchetom polzuchesti materiala) betonnogo massiva v protsesse ego poblochnogo narashchivaniia].
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Ovchinnikova, T.T.
Concrete structures, Dams, Concrete placing, Thermal stresses, Relaxation (mechanics).

34-469
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Sheĭnker, N.IA.
Concrete structures, Concrete hardening, Concrete freezing, Cooling rate, Fracturing, Frost resistance.

34-470
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Sheĭnker, N.IA.
Hydraulic structures, Dams, Concrete structures, Thermal stresses, Relaxation (mechanics), Creep, Analysis (mathematics).

34-471
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34-472
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Moore, H., Gregory, A.F.
Snow cover, Snowmelt, Mapping, Spaceborne photography, Snow line, Models, Canada—Northwest Territories, Canada—Yukon Territory.

34-473
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Radio echo soundings, Ice sheets, Sea ice.
The activities of the Scott Polar Research Institute for the year ending Sep. 30, 1978 are summarized under the following topics: teaching and research, library and information service, international activities, finance, and lectures. In addition, publications, grants, visiting scholars, staff and research students, and gifts are listed. The principal achievements of the airborne radio echo sounding of polar ice sheets program were filling in gaps in the 100-m flightline network over east Antarctica and extending it westwards. The previous sounding grid over Marie Byrd Land was extended eastwards towards the Pensacola and Ellsworth mountains and ten glaciological profiles were flown over various areas. For the first time, simultaneous magnetic profiles were obtained on radio echo flights.

34-474
SCAR Working Group on Glaciology.
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Ice sheets, Sea ice, Glacier ice, Snow surveys, Ice shelves.
The meeting of the glaciology working group was held in Ottawa, Canada, Aug. 19-20, 1978. The national and international activities reported are briefly summarized. Field studies are being conducted by Argentina, Australia, Chile, France, Japan, Norway, USSR, United Kingdom and the United States. The Federal Republic of Germany plans to start geophysical and glaciological studies in 1981. The international activities include the international and the Antarctic Peninsula glaciology projects, glaciological aspects of climate studies, a satellite image atlas of glaciers, a world glacier inventory, a third antarctic glaciology symposium, satellite glaciology, radio echo sounding flights, ice sheet modelling a further conference on icebergs, and ice shelf and sea ice studies. The proceedings of the meeting also included elections, proposals for future meetings, and recommendations.

34-475
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Chanasyk, D.S., Male, D.H., Norum, D.I.
Snowmelt, Meltwater, Thermal regime, Soil temperature, Solar radiation, Soil water, Air temperature, Diurnal variations, Heat flux, Snow cover.

34-477
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Milev, N.V.
Phase transformations, Temperature effects, Mathematical models.

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Offshore structures, Ice pressure, Ice models, Simulation.

34-479
Arctic winter evaluation study of transportation equipment.
Rymes (J.E.) Engineering, Ltd., *Arctic Petroleum Operators Association, Calgary, Alta. Report*, July 1973, APOA 49-1, var.p., 19 refs.
Equipment, Vehicles, Cold weather performance.

34-480
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Spedding, L.G., *Arctic Petroleum Operators Association, Calgary, Alta. Report*, Oct. 1973, APOA 51-1, 122p. + figs.
Fast ice, Drift, Remote sensing, Telemetering equipment, Wind (meteorology), Air temperature, Ice temperature.

34-481
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Foundation of Canada Engineering Corporation, Ltd., *Arctic Petroleum Operators Association, Calgary, Alta. Report*, Sep. 1973, APOA 52-2, c.20p.
Offshore structures, Ice loads, Ice pressure, Ice strength.

34-482
Ice crushing tests, 1973.
Taylor, T.P., *Arctic Petroleum Operators Association, Calgary, Alta. Report*, July 1973, APOA 52-3, p.64p. + figs., 5 refs.
Lake ice, Ice strength, Compressive properties, Mechanical tests.

34-483
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Lake ice, Compressive properties, Ice strength.

34-484
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Croasdale, K.R., Hnatiuk, J., Smith, J.G.
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34-485
Proposal to evaluate an oil containment boom for use in ice-infested waters.
ARCTEC Canada, Ltd., *Arctic Petroleum Operators Association, Calgary, Alta. Report*, Oct. 16, 1975, APOA 100-1, 16p. + append., 1 ref.
Oil spills, Countermeasures, Tests.

34-486
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Nadreau, J.P., et al, *Arctic Petroleum Operators Association, Calgary, Alta. Report*, June, 17, 1976, APOA 100-2, 37p. + append.
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Experimentation, Oil spills, Countermeasures.

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Overall, J.
Crude oil, Sea ice, Fires, Weathering, Sea water.

34-488
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34-489
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Sharp, P.L., *Arctic Petroleum Operators Association, Calgary, Alta. Report*, Jan. 1978, APOA 114-1, 43p., 9 refs.
Animals, Mechanical tests, Helicopters, Oil spills.

34-490
Coastal environment of southern Baffin Island and northern Labrador-Ungava.
Barry, R.G., et al, *Arctic Petroleum Operators Association, Calgary, Alta. Report*, Dec. 1977, APOA 138-1, 166p.
Crane, R.G., Locke, C.W., Miller, G.H.
Mapping, Coastal topographic features, Sediments, Sea ice.

34-491
Biological literature review of the Labrador Sea region.
MacLaren Atlantic, Ltd., *Arctic Petroleum Operators Association, Calgary, Alta. Report*, Nov. 1977, APOA 138-2, var.p., Numerous refs.
Bibliographies, Oceanographic surveys, Marine biology, Microbiology, Animals.

34-492
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Data processing, Oceanographic surveys, Marine biology, Microbiology, Water temperature, Salinity.

34-493
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Marine biology, Water chemistry, Animals, Surveys, Biomass.

34-494
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Aerial surveys, Marine biology, Animals.

34-495
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MacLaren Atlantic, Ltd., *Arctic Petroleum Operators Association, Calgary, Alta. Report*, Dec. 1977, APOA 138-6, var.p., 10 refs.
Animals, Marine biology, Microbiology.

34-496
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Natural resources, Animals, Human factors, History.

34-497
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Bibliographies, Marine biology, Animals, Davis Strait.

34-498
Biological literature review of Ungava Bay and Hudson Strait.
MacLaren Atlantic, Ltd., *Arctic Petroleum operators Association, Calgary, Alta.* *Report*, Nov. 1977, APOA 138-9, var.p., Numerous refs.
Bibliographies, Marine biology, Animals.

34-499
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Oceanographic surveys, Marine biology, Sea water, Sediments.

34-500
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Application methods for determining biologic activity of paluded sod-podsol soils. {Opredelenie biologicheskoi aktivnosti dernovo-podzolistykh zabolochennykh pochv applikatsionnymi metodami}.
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Major types of antarctic ice shores.
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Ice shelves, Calving, Classifications, Antarctica.
A classification of antarctic ice shores distinguishes two morphologic types: rocky ice (grounded ice) and floating ice. In terms of the conditions of formation of these types of shores, the following genetic types are distinguished: abrasion, wave-calved, thermal abrasion, ablation, floating, calved as well as unusual accretion shores and shores formed by old fast ice (Auth.)

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Linear elements of sea-ice relief.
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Sea ice, Ice surface.

The empirical evidence suggests that all types of ice display linear elements that can be compared with lineaments in the earth's surface. The basic global jointing pattern of NE-SW and NW-SE appears to extend to sea ice, and ice-navigation experience suggests that movement is easier along these courses while courses close to the N-S and E-W directions result more frequently in ships becoming icebound. Closer study of ice jointing patterns may thus offer new prospects for ice navigation, especially in connection with the establishment of new high-latitude icebreaker routes. The linear relief elements of antarctic sea ice and ice shelves, as well as ice cover in both the interior and marginal parts of the continent are discussed.

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Zonal characteristics of polygonal ice-wedge relief in Western Siberia.
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34-534
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Ice creep, Rheology, Ice mechanics, Stress strain diagrams, Viscoelasticity, Analysis (mathematics), Experimentation.

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Richter, K., *Strasse und Autobahn*, June 1979, 30(6), p.237-243, In German.
Snow removal, Snow accumulation, Winter maintenance, Streets.

34-537
Winter service to the city of Bern. [Winterdienst in der Stadt Bern].
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Snow removal, Ice prevention, Winter maintenance, Road maintenance, Streets.

34-538
Mass budget of the Lambert Glacier drainage basin, Antarctica.
Allison, I., *Journal of glaciology*, 1979, 22(87), p.223-235, 30 refs.
Glacier mass balance, Glacial hydrology, Ice shelves, Ice cover thickness, Glacier ablation, Antarctica—Lambert Glacier, Antarctica—Prince Charles Mountains.
Estimates have been made of the mass budget of the total drainage basin of Lambert Glacier. These show a small but significant positive state of balance for the interior basin (the accumulation area up-stream of the major ice streams), and strongly suggest a positive balance for the Lambert Glacier system (the region of major ice streams, between the Amery Ice Shelf and the interior basin). The total mass flux into the interior basin is estimated as 60 Gt/a. Results are presented from a number of ice movement stations established between 1972 and 1974 around the perimeter of the southern Prince Charles Mountains. These results, together with ice thicknesses from radio echo-sounding in the area, give a total mass outflux through the 2,000 m contour of 30 Gt/a, implying a budget excess of a further 30 Gt/a over the whole interior basin. Results from velocity and ice thickness measurements give a mass discharge through a section near the junction of Lambert Glacier and the Amery Ice Shelf of 11 Gt/a. Losses within the Lambert Glacier system proper account for a further 7 Gt/a and an overall mass excess of 12 Gt/a is estimated for the Lambert Glacier system. This present positive state of balance contrasts with geomorphological evidence from the southern Prince Charles Mountains of a large drop in ice level in recent geological time, and the ice surface in the area may now be building up after a major recession. (Auth.)

34-539
***In-situ* measurements of the activation energy for D.C. conduction in polar ice.**
Bentley, C.R., *Journal of glaciology*, 1979, 22(87), p.237-246, 14 refs.
Ice electrical properties, Ice shelves, Electrical resistivity, Ice models, Antarctica—Ross Ice Shelf.
Electrical resistivity measurements were carried out at Station J9 on the Ross Ice Shelf where temperature measurements were available to a depth exceeding three-quarters of the thickness of the shelf. As in a previously published study at a point about 30 km up-stream (Bentley, 1977), the apparent resistivities fit well to a model based upon a steady-state ice shelf with zero bottom balance-rate and an apparent activation energy in the solid ice of 0.15 to 0.25 eV, with preference for the lower end of the range. This model also fits the observed temperature data almost perfectly. Causes of resistivity variation with depth other than the temperature, such as impurity content, metamorphic history, grain size, and crystal orientation, probably do not strongly affect the resistivity depth function. It is concluded that the true activation energy in the solid ice is less than 0.25 eV and perhaps as small as 0.15 eV, although a reduction by a factor of two or three in the ionic impurity concentration between 50 and 250 m depth cannot be entirely ruled out as a cause of the low apparent temperature effect. A note added in proof indicates that Herron and Langway (in press) have, in fact, reported a decrease in Na^+ concentration with increasing depth by a factor of two or three. (Auth.)

34-540
Rhombus and rhomboid parallelogram patterns on glaciers: natural indicators of strain.
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Glacier surfaces, Heat transfer, Glacial meteorology.

34-542
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Glacier flow, Particles, Particle size distribution, Glacier ice.

34-543
Is vertical shear in an ice shelf negligible.
Sanderson, T.J.O., et al, *Journal of glaciology*, 1979, 22(87), p.285-292, 11 refs.
Doake, C.S.M.
Ice shelves, Shear stress, Glacier tongues, Analysis (mathematics), Antarctica—Amery Ice Shelf.
Vertical shear stress in ice shelves cannot be precisely zero, since the upper and lower surfaces are generally not parallel. Vertical shear stress is calculated for an unconfined glacier tongue and for a confined bay ice shelf, first, using the assumption of constant temperature and density with depth, and secondly, using realistic data and profiles for Erebus Glacier tongue and for the Amery Ice Shelf. Shear stresses increase almost linearly with depth and are proportional to surface slope. For Erebus Glacier tongue the shear stress is at most 5% of the magnitude of the direct stress deviators and its action through the ice shelf should result in differential movement of 1.8 cm/a between the top and bottom of the ice shelf. For the Amery Ice Shelf, the shear stress is at most 0.4% of the magnitude of the direct stress deviators and this should lead to differential movement of 2.5 cm/a between the top and bottom of the ice shelf. Shear stresses are therefore generally negligible in comparison with direct stress deviators and can be ignored when considering the overall dynamics of ice shelves. Differential movement is unlikely to be detectable. (Auth.)

34-544
Some results from a linear-viscous model of the Arctic ice cover.
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Tucker, W.B.
Ice physics, Drift stations, Ice models, Sea ice, Viscosity, Ocean currents, Stresses.

34-545
Effects of ice thickness on the exchange of solar radiation over the polar oceans.
Grenfell, T.C., *Journal of glaciology*, 1979, 22(87), p.305-320, 20 refs.
Sea ice, Ice cover thickness, Solar radiation, Colored ice, Albedo, Snow cover.

34-546
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Menzies, J., *Journal of glaciology*, 1979, 22(87), p.373-384, 52 refs.
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System for accurate temperature control of small fluid baths.
Morgan, V.I., *Journal of glaciology*, 1979, 22(87), p.389-391, 2 refs.
Temperature control, Electronic equipment.

34-553
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Glacier flow.

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Patterned ground, Moraines, Glacier ablation.

34-555
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Sommerfeld, R.A., *Journal of glaciology*, 1979, 22(87), p.402-404, 1 ref.
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Glacier oscillation, Climatic changes, Glacier mass balance.

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Foundation Company of Canada, Ltd., SEDCO, Inc.
Offshore drilling, Sea ice, Ice conditions, Equipment, Cost analysis, Barges, Wind (meteorology), Ocean currents.

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Scott, R.R.G.
Sea ice, Drift, Ice conditions, Meteorological factors.

34-559
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Nuttall, J.B., *Arctic Petroleum Operators Association, Calgary, Alta. Report*, Oct. 1, 1971, APOA 17-2, 34p.
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34-560
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Lerand, M.M., *Arctic Petroleum Operators Association, Calgary, Alta. Report*, Oct. 12, 1971, APOA 17-3, 4p.
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Tundra, Animals, Biomass, Grasses.

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Environmental protection, Land development, Regional planning.

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Land development, Geological surveys, Regional planning.

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Manuals, Drilling, Construction, Telecommunication, Safety.

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Lewis, J.W.
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SEDCO, Inc.
Offshore drilling, Ships, Sea ice, Ice breaking, Oceanography, Logistics, Cost analysis.

34-574
Study of Beaufort Sea exploratory drilling systems.
Global Marine, Inc., *Arctic Petroleum Operators Association, Calgary, Alta. Report*, Dec. 20, 1971, APOA 30-2, var. p.
Offshore drilling, Meteorological factors, Safety, Sea ice, Ships, Cold weather operation, Logistics.

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Acoustic measurement, Grounded ice, Ice scoring, Echo sounding.

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Fast ice, Pack ice, Drift, Telemetering equipment, Remote sensing, Wind (meteorology), Air temperature, Sea water.

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34-586
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Construction equipment, Earthwork, Frozen ground.

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34-592
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Channels (waterways), Water flow, Remote sensing, Ocean currents, Canada—Northwest Territories—Parry Channel.

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34-594
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Croasdale, K.R., *Arctic Petroleum Operators Association, Calgary, Alta. Report*, Nov. 1970, APOA 2-1, c.145p., 5 refs.
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34-596
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Smith, J.G., *Arctic Petroleum Operators Association, Calgary, Alta. Report*, 1970, APOA 2-3, 75p.
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34-597
1970 bottom sampling program south coast of Beaufort Sea, Mackenzie Bay to Liverpool Bay, Northwest Territories.
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34-598
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Lerand, M.M., comp, *Arctic Petroleum Operators Association, Calgary, Alta. Report*, 1971, APOA 4-1, c.215p.
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Alpine landscapes, Snow cover distribution, Ecology, Remote sensing, Runoff, Environments, Canada—British Columbia—Teresa Island.

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Polymers, Low temperature tests, Loads (forces), Strains, Shear stress, Fracturing.

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Urish, D.W., Kingston, University of Rhode Island, 1978, 336p., University Microfilms order No.79-15473, Ph.D. thesis. For abstract see Dissertation abstracts international, Sec. B, July 1979, p.137-138.
Glacial deposits, Sands, Geoelectricity, Hydrogeology, Electrical resistivity, Permeability, Porosity, Tests.

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34-608
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34-610
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Akaeva, L.A.
River basins, Slope processes, Avalanches, Mudflows, Avalanche forecasting.

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Programs for weather type indices used in the computer processing of snow and avalanche information. [Programmnyi kompleks formirovaniia klassifikatora tipov pogody pri obrabotke snegolavinnoi informatsii na EVM],
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Zalikhanov, M.Ch.
Avalanche forecasting, Computer applications, Avalanche formation, Meteorological data, Data processing.

34-612
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Avalanche forecasting, Computer applications, Meteorological data.

34-613
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Samukashvili, R.D., *Nal'chik. Vysokogornyi geofizicheskii institut. Trudy*, 1979, Vol.43, p.87-93, In Russian. 5 refs.
Glacial rivers, Alimentation, Mountain glaciers, Glacier ablation, Glacial hydrology.

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Albedo, Clouds (meteorology), Brightness, Spectroscopy, Snow optics.

34-615
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Solar radiation, Snow cover distribution, Alpine landscapes, Radiation balance, Atmospheric physics.

34-616
Community response strategies for environmental problems of water supply and wastewater disposal in Fairbanks, Alaska.
Smith, D.W., et al, *Alaska. University. Institute of Water Resources. Report*, June 1976, IWR No.66, 28p., 39 refs.
Pearson, R.W.
Water supply, Waste disposal, Water treatment, Environmental impact, Urban planning, Permafrost distribution, History.

34-617
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Justice, S.R.
Water supply, Reservoirs, Water chemistry, Leaching, Water treatment.

34-618
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Hawkins, D.B., et al, *Alaska. University. Institute of Water Resources. Report*, Jan. 1976, IWR-71, 70 p., 16 refs.
Nelson, G.L.
Water chemistry, Soil chemistry, Ground water, Reservoirs, Geochemistry.

34-619
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Smith, D.W.
Human factors, Houses, Environments, Sanitary engineering, Air pollution.

34-620
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Tilsworth, T., Cook, D.J.
Mines (excavations), Environmental impact, Water pollution.

34-621
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Carlson, R.F., *Alaska. University. Institute of Water Resources. Report*, June 1976, IWR-75, 47p. + append., 21 refs.
Air pollution, Computer programs, Models, United States—Alaska—Fairbanks.

34-622
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Water pollution, Water chemistry, Mining, Ground water, Soil water migration.

34-623
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Carlson, R.F., et al, *Alaska. University. Institute of Water Resources. Report*, Jan. 1977, IWR-78, c.200p., Includes Role of benthos in the Gulf of Alaska ecosystems by G.J. Bakus, 36p. Presented at the Symposium on Science, Resources and Technology in the Gulf of Alaska, Oct. 16-17, 1975, University of Alaska. Numerous refs.
Seifert, R.D., Kane, D.L., Bakus, G.J.
Stream flow, Seasonal variations, Sea ice, Snowmelt, Runoff, Hydrology.

34-624
Nutrient chemistry of a large, deep lake in subarctic Alaska.
LaPerriere, J.D., et al, *Alaska. University. Institute of Water Resources. Report*, Aug. 1977, IWR-80, 128p., Numerous refs.
Tilsworth, T., Casper, L.A.
Water chemistry, Nutrient cycle, Water supply, Waste disposal, Watersheds, Economic development, Models, Ecosystems.

34-625
Roof response to icing conditions.
Lane, J.W., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, July 1979, CR 79-17, 40p., ADA-074 477, 12 refs.
Marshall, S.J., Munis, R.H.
Roofs, Thermal conductivity, Icing, Melting, Slope orientation.
Six test roofs of two different slopes 16.3 deg and 39.8 deg, and three different roof coverings asphalt shingles, cedar shingles, and corrugated aluminum sheeting, were constructed at USACRREL, Hanover, New Hampshire, and were instrumented with thermocouples, heat flow meters, and calibrated gutters. Measurements were recorded for the winters of 1971-72 and 1972-73. The degree of icing and the chronological changes in the snow cover were recorded on 35-mm Kodachrome slides. It was found that eave icing is a sensitive function of the slope, roof covering composition, and solar radiation. The effects of wind were not investigated, the data were screened to remove all information corresponding to windspeeds over 8 km/h. In order of increasing tendency to form ice dams on the eaves, the roofs were high-slope asphalt, high-slope cedar, high-slope aluminum, low-slope asphalt, low-slope cedar, and low-slope aluminum.

34-626
Bullet penetration in snow.
Cole, D.M., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, July 1979, SR 79-25, 23p., ADA-074 412, 14 refs.
Farrell, D.R.
Snow (construction material), Projectile penetration, Penetration tests.
Three types of ammunition, the M193, M80, and M43, were tested. Rounds were fired into snow targets of various thicknesses up to that thickness required to fully stop the projectiles. The maximum penetrations for the three rounds tested were 0.70 m, 1.26 m and 1.06 m, respectively. Velocity loss as a function of target thickness was determined by measuring projectile velocity before and after impact of the projectile with the target. The velocity loss vs. thickness data showed a sigmoid shape common to the three types of rounds. The impact and exit yaw angles of the M193 rounds were estimated. Scatter in the test data was attributed, in part, to random variations in the impact yaw angle. The penetration required for a 90 deg yaw was determined by the exit yaw measurements. This was shown to correspond to the inflection point on the velocity loss vs. penetration curve. This point is potentially significant in the design of composite fortifications. Discussions deal with basic concepts and definitions, the occurrence and significance of projectile tumbling and the use of laboratory tests for small arms evaluation in snow targets. The validity of the methodology used was established by testing M193 rounds in gelatin targets. These results compared favorably with similar test results in literature.

34-627
Hydrologic properties of subarctic organic soils.
Kane, D.L., et al, *Alaska. University. Institute of Water Resources. Report*, Jan. 1978, IWR-88, 49p., 22 refs.
Seifert, R.D., Taylor, G.S.
Organic soils, Heat transfer, Soil water migration, Fires, Permafrost hydrology.

34-628
Solar energy resource potential in Alaska.
Seifert, R.D., et al, *Alaska. University. Institute of Water Resources. Report*, Mar. 1978, IWR-89, 79p., 18 refs.
Zarling, J.P.
Heating, Solar radiation, Water, United States—Alaska.

34-629
Excerpts from *Rheological Fundamentals of Soil Mechanics*.
Vialov, S.S., *U.S. Army Cold Regions Research and Engineering Laboratory*, May 1979, TL 716, 134p., ADB-039 069L, Distribution limited to U.S. Government agencies only. For the complete Russian book see 34-432.
Soil mechanics, Soil creep, Plastic deformation, Soil strength, Models, Analysis (mathematics).
The book from which the three chapters in this translation are taken investigates principles of rheology in soil mechanics and bases its scientific principle on the relation of pressure change and volume, densification, and such properties of soil as internal friction, cohesion, and changes in structure and texture. Chapter 5 investigates forms of creep, deformation, residual deformation and the relation of stress, strain and time. The general forms of the creep flow equations are treated considering time and rate variables. Experimental data are presented. Chapter 7 investigates the mechanistic models of linear elastic-plastic concepts of ground deformation, arriving at a series of complicated concepts explaining shear creep. The chapter ends with theoretical fundamentals of flow and creep based on molecular-kinetic and thermoactive processes. Chapter 9 leads to field and laboratory strength tests of soil. Investigated are the conditions of load application and its influence upon test results. The important long-term strength equations are derived in detail. The chapter gives many concepts of strength variables, conditions and states which are immediately applicable in practice.

34-630
Environmental Standards for Northern Regions: a symposium, June 1974, Anchorage, Alaska.
Smith, D.W., ed, Alaska. University. Institute of Water Resources. Report IWR-62, Fairbanks, University of Alaska, 1975, 389p., For selected individual papers see 34-631 through 34-640.
Tilsworth, T., ed.
Meetings, Standards, Laboratories, Water treatment, Environments, Waste disposal, Water chemistry, Economic development, Sanitary engineering.

34-631
Research activities of U.S. Army Cold Regions Research and Engineering Laboratory.
Buzzell, T.D., *Alaska. University. Institute of Water Resources. Report*, Mar. 1975, IWR-62, MP 1244, Environmental Standards for Northern Regions: a symposium, June 1974, Anchorage, Alaska, p.9-12.
Laboratories, Research projects.

34-632
Primary vs. secondary vs. tertiary treatment: which one.
McKinney, R.E., *Alaska. University. Institute of Water Resources. Report*, Mar. 1975, IWR-62, Environmental Standards for Northern Regions: a symposium, June 1974, Anchorage, Alaska, p.113-129.
Water treatment, Water pollution, Waste disposal.

34-633
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Schallock, E.W., *Alaska. University. Institute of Water Resources. Report*, Mar. 1975, IWR-62, Environmental Standards for Northern Regions: a symposium, June 1974, Anchorage, Alaska, p.141-162, 14 refs.
Water chemistry, Oxygen, Rivers, Ice cover effect, Water pollution.

34-634
Mandatory chlorination of wastewater discharges.
Gordon, R.A., et al, *Alaska. University. Institute of Water Resources. Report*, Mar. 1975, IWR-62, Environmental Standards for Northern Regions: a symposium, June 1974, Anchorage, Alaska, p.163-186, 47 refs.
Davenport, C.V.
Water chemistry, Water pollution, Waste disposal, Water treatment.

34-635
Anchorage wastewater treatment.
West, C.E., et al, *Alaska. University. Institute of Water Resources. Report*, Mar. 1975, IWR-62, Environmental Standards for Northern Regions: a symposium, June 1974, Anchorage, Alaska, p.187-195, 1 ref.
Carlson, R.F.
Waste disposal, Water treatment, Sewage disposal, Tidal currents, Utilities.

34-636
Village sanitary problems.
Ryan, W.L., *Alaska. University. Institute of Water Resources. Report*, Mar. 1975, IWR-62, Environmental Standards for Northern Regions: a symposium, June 1974, Anchorage, Alaska, p.315-320.
Waste disposal, Water supply, Economics, Water pipelines.

34-637
Solid waste disposal in Alaska.
Grundwaldt, J.J., et al, *Alaska. University. Institute of Water Resources. Report*, Mar. 1975, IWR-62, Environmental Standards for Northern Regions: a symposium, June 1974, Anchorage, Alaska, p.331-356, Numerous refs.
Tilsworth, T., Clark, S.E.
Waste disposal, Solids, Fuels, Heat recovery, Ice fog.

34-638
Wastewater treatment and disposal alternatives in northern regions.
Smith, D.W., et al, *Alaska. University. Institute of Water Resources. Report,* Mar. 1975, IWR-62, Environmental Standards for Northern Regions: a symposium, June 1974, Anchorage, Alaska, p.357-389, Bibliography p.384-389.
Cameron, J.J.
Water treatment, Waste disposal, Water supply, Standards.

34-639
Unit water use in Alaskan municipal water supplies.
Hansen, R.G., *Alaska. University. Institute of Water Resources. Report,* Mar. 1975, IWR-62, Environmental Standards for Northern Regions: a symposium, June 1974, Anchorage, Alaska, p.321-329.
Water supply, Water pipelines, Ice prevention, Water flow.

34-640
End of the beginning.
Coate, L.E., *Alaska. University. Institute of Water Resources. Report,* Mar. 1975, IWR-62, Environmental Standards for Northern Regions: a symposium, June 1974, Anchorage, Alaska, p.199-206.
Environmental protection, Legislation.

34-641
Evaluation of the trophic types of several Alaskan lakes by assessment of benthic fauna.
LaPerriere, J., *Alaska. University. Institute of Water Resources. Report,* Mar. 1975, IWR-63, 49p., Numerous refs.
Lake water, Ecology, Animals, Water pollution.

34-642
Clearing Alaskan water supply impoundments: literature review.
Justice, S.R., et al, *Alaska. University. Institute of Water Resources. Report,* Apr. 1976. IWR-67-A, 96p., Numerous refs.
Smith, D.W.
Reservoirs, Water chemistry, Stratification, Alimentation, Ice cover effect.

34-643
Biogeochemistry of deep lakes in the central Alaskan Range.
LaPerriere, J., et al, *Alaska. University. Institute of Water Resources. Report,* Feb. 1976, IWR-68, 35p., 17 refs.
Casper, L.
Lake water, Water chemistry, Ecology, Algae, Biomass.

34-644
Investigation of an ozone-filter system for color and iron removal at low temperatures.
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Pack ice, Sea ice distribution, Meteorological factors.
Statistics of a number of characteristics of the cloud vortices associated with cyclonic storms in the 40-75S latitude belt have been compiled, based upon an evaluation of ESSA Southern Hemisphere mosaic satellite photographs for the spring and fall seasons, when the pack-ice border is at its farthest equatorward and poleward positions. Analysis of the data shows a significant equatorward shift of the latitude of maximum frequency of storm occurrence in spring when compared to the fall season, which corresponds with the annual migration of the pack-ice border. The longitudinal distributions and directions of movement of cyclonic storms do not appear to be significantly affected. Results of an attempt to correlate the spring position of the pack-ice border with the spring latitudinal distribution of vortices in certain longitude sectors show an apparent, but not highly significant, relationship. (Auth mod.)

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Windows, Insulation.

34-690
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Waste treatment, Water treatment, Sanitary engineering, Sewage disposal.

34-693
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Cold weather construction, Modular construction, Buildings, Design.

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34-698
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Water vapor, Supersaturation, Ice nuclei, Phase transformations, Equilibrium diagrams.

34-702
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Foundations, Rock fills, Permafrost beneath structures, Thermal regime, Design.

34-703
Superposition method of determining temperature fields of ground beneath a single or a group of structures with complex shapes. [Opredelenie temperaturnykh polei grunta v osnovanii odnogo ili gruppy sooruzhenii slozhnoi formy metodom superpozitsii],
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Foundations, Permafrost bases, Thermal regime, Heat transfer, Design.

34-704
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Naumova, L.A.
Soil freezing, Soil water migration.

34-705
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Khvorostovskaia, N.S.
Permafrost beneath structures, Pile driving, Frozen ground temperature, Thermal regime, Pile foundations.

34-706
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Earthwork, Artificial thawing, Electric heating, Permafrost thermal properties, Heat transfer, Thawing rate.

34-707
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Earth dams, Frozen ground, Ground ice, Dynamic loads.

34-708
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Pile structures, Soil freezing, Soil water migration, Frost heave, Design.

34-709
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Pile structures, Soil freezing, Frost penetration, Frost heave, Stresses.

34-710
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Ice (construction material), Ice strength, Reinforced ice, Wood, Wastes.

34-711
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Pile structures, Permafrost beneath structures, Earthquakes, Permafrost bases, Thermal regime, Permafrost control.

34-712
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Il'inykh, V.I.
Piles, Concrete piles, Bearing strength.

34-713
Basic classification indices of peat soils. [Osnovnye klassifikatsionnye parametry torfianykh gruntov],
Roman, L.T., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1976, Vol.38, p.122-130, In Russian. 9 refs.
Swamps, Peat, Bearing strength, Soil composition, Frozen ground.

34-714
Observing thermal regime of ground beneath an experimental building. [Nekotorye rezul'taty nabliudenii za formirovaniem temperaturnogo rezhima gruntov v osnovanii opytnogo zdaniia],
Kabanov, E.P., et al, *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1976, Vol.38, p.131-139, In Russian. 3 refs.
Il'inykh, V.I.
Pile structures, Rock fills, Permafrost beneath structures, Thermal regime, Permafrost control, Buildings.

34-715
Structure of boiler room foundations built on permafrost. [Ratsional'naia konstruktsiia tsokol'noi chasti kotel'nykh na vechnomerzlykh gruntakh],
Kabanov, E.P., et al, *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1976, Vol.38, p.140-144, In Russian. 5 refs.
Sr.ezhko, O.V.
Foundations, Rock fills, Permafrost beneath structures, Thermal insulation, Permafrost control, Buildings.

34-716
Observation of building settlement in Magadan. [Rezul'taty nabliudenii za osadkami zdanii v Magadane],
Gorskii, V.F., et al, *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1976, Vol.38, p.145-150, In Russian. 4 refs.
Konash, V.E., Raiskii, E.I.
Piles, Permafrost beneath structures, Settlement (structural), Buildings.

34-717
Hydrogeological conditions of Yelanskiy artesian basin (Transbaikal). [Gidrogeologicheskie usloviia Elanskogo arteziankskogo basseina (Zabaikal'e)],
Bakhlov, A.S., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Geologiia i razvedka*, Aug. 1979, No.8, p.53-58, In Russian.
Artesian water, Permafrost distribution, Permafrost hydrology, Cryogenic structures, Geocryology, USSR —Transbaikal.

34-718
Electric models of rock freeze-thaw. [Elektricheskoe modelirovanie protaivaniia-promerzaniia gornykh porod],
Rashkin, A.V., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Geologiia i razvedka*, Aug. 1979, No.8, p.135-137, In Russian. 2 refs.
Models, Soil freezing, Ground thawing, Frozen rock temperature.

34-719
Reading unit for ice calorimeter.
Zakurenko, O.E., et al, *Instruments and experimental techniques*, Nov.-Dec. 1978 (Publ. June 79), 21(6), pt.2, p.1643-1644, Translated from Pribory i tekhnika eksperimenta. 4 refs.
Kuz'michev, V.M.
Calorimeters, Design.

34-720
Design of bases and foundations on subsiding soils. [Raschet osnovanii i fundamentov na prosadochnykh gruntakh],
Mustafaev, A.A., Moscow, Vysshaia shkola, 1979, 368p., In Russian with English table of contents. 7 refs.
Fines, Bearing strength, Subsidence, Clays, Loess, Soil water migration, Piles, Settlement (structural), Large panel buildings.

34-721
Power transmission lines in high mountains. [Vysokogornye linii elektroperedachi],
Davidian, D.B., Erevan, Aiastan, 1979, 188p., In Russian with English table of contents enclosed. Refs. p.182-186.
Ice loads, Transmission lines, Power line supports, Ice prevention, Permafrost beneath structures, Power line icing, Electric heating, Electrical grounding, Mountains, Hoarfrost.

34-722
Arctic Ocean heat budget; report from SCOR Working Group 58.
Aagaard, K., et al, *Bergen, Norway. Universitetet. Report. Division A: Physical oceanography*, June 1979, No.52, 98p., Refs. p.91-98.
Sea water, Heat balance, Sea ice, Climatic factors, Heat flux, Heat loss, Snow density, Snow depth, Ice cover thickness, Phase transformations, Arctic Ocean.

34-723
Lake ice density in the environment—practical approaches to measurement and calculation.
Adams, W.P., et al, *Trent University, Peterborough, Ont. Biology Department. Ecology bulletin*, Fall, 1979, 4(1), p.15-24, 9 refs.
Barr, D.R., Glew, K.J., Hurford, K.J., Stillman, M.W.
Lake ice, Ice density, Measuring instruments.

34-724
Artificial tritium fall-out at the South Pole.
Jouzel, J., et al, Behaviour of tritium in the environment, International Atomic Energy Agency, IAEA-SM-232/38, Vienna, Austria, 1979, p.31-46, 24 refs.
Pourchet, M., Lorius, C., Merlivat, L.
Radioactive isotopes, Isotope analysis, Fallout, Precipitation (meteorology), Antarctica—Amundsen-Scott Station.

Snow samples were taken from a 5-m-deep pit located near Amundsen-Scott Station in Jan. 1975, and continuous deuterium, tritium and beta activity profiles have been obtained from them. These three measurements and the stratigraphic level observation allow a precise chronology of the pit from 1950 to 1975 to be deduced, providing a continuous record of artificial tritium fall-out in the Southern hemisphere. This has been extended to 1978 using samples from a second pit taken

in 1978. The beta and tritium peaks occur during the Antarctic summer and the Antarctic winter respectively, showing different injection mechanisms. The winter input and the high tritium values registered at the Amundsen-Scott Station indicate a preferential tritium transfer over the polar region. Two mechanisms, stratospheric-tropospheric exchange and direct stratospheric cloud precipitation, could account for this injection. (Auth.)

34-725
Economic analysis of an Arctic icebreaking tanker transportation system: nuclear vs. fossil.
Porter, T.J., University Park, Pennsylvania State University, Nov. 1977, 102p., M.S. thesis. 28 refs.
Ice breaking, Economic analysis, Tanker ships, Petroleum transportation, Environmental impact.

34-726
U.S. Geological Survey in Alaska; 1979 programs.
Reed, K.M., ed, *U.S. Geological Survey. Circular*, 1979, No.804-A, 94p.
Geological surveys, Topographic surveys, Water reserves, Mapping, United States—Alaska.

34-727
Average spring, summer, fall and winter iceberg density distribution along the Labrador Coast.
Gustajtis, K.A., et al, St. John's, Memorial University of Newfoundland, C-CORE, 1977, 4 maps.
Buckley, T.J.
Icebergs, Sea ice distribution, Ice conditions, Seasonal variations, Canada—Newfoundland—Labrador Coast.

34-728
Reduction of contamination problems in sampling of antarctic snows for trace element analysis.
Boutron, C., *Analytica chimica acta*, 1979, Vol.106, p.127-130, 5 refs.
Snow composition, Sampling, Snow impurities.

34-729
Preconcentration of dilute solutions at the 1/1,000,000 microgram/g level by nonboiling evaporation with variable variance calibration curves.
Boutron, C., et al, *Analytical chemistry*, Jan. 1979, Vol.51, p.140-145, 10 refs.
Martin, S.
Snow composition, Chemical composition, Snow impurities, Evaporation.
A procedure is described for the preconcentration of very dilute solutions at the 1/1,000,000 microgram/g level by nonboiling evaporation in Teflon bulbs in the presence of hydrofluoric and nitric acids under clean room conditions. By processing various synthetic standards, calibration curves are determined by variable ariance statistical techniques for Na, Mg, K, Ca, Fe, Al, Mn, Pb, Cd, Cu, Zn, and Ag. The results of the analysis by this procedure of a typical snow sample collected at South Pole Station show that for most of the elements the precision is in the order of 10%. (Auth. mod.)

34-730
Determination of the stratospheric residence time from the total beta activity of antarctic and Greenland snows.
Pourchet, M., et al, *Geophysical research letters*, May 1979, 6(5), p.365-367, 9 refs.
Pinglot, F.
Snow impurities, Radioactivity, Fallout, Stratosphere.
The beta-activity in polar snow reflects the combined effects of fallout from and radioactive decay in the stratospheric reservoir of nuclear debris, which has become virtually uniform since the last bomb tests in 1965. This makes it possible to estimate the stratospheric residence time from the decrease in the beta-activity of snow with age (depth). The residence times thus determined for Antarctica and Greenland average 1.63 years and are in good agreement with published estimates from atmospheric measurements. (Auth.)

34-731
Alkali and alkaline earth enrichments in aerosols deposited in antarctic snows.
Boutron, C., *Atmospheric environment*, 1979, Vol.13, p.919-924, 25 refs.
Snow composition, Snow impurities, Aerosols.
About 175 snow samples collected in various locations both in East and West Antarctica, using stringent contamination free techniques, have been analyzed for Na, Mg, K, Ca and Al by flameless atomic absorption after preconcentration. Multiple linear regression analysis was used to calculate the enrichment factors for K, Ca and Mg in both the oceanic and the crustal components: no significant enrichments are found in antarctic snows, which suggests that the enrichments previously observed by Vosters (1971) and Boutron et al. (1972) could be linked with a contamination of the samples analyzed by these authors. This conclusion can probably be extended to antarctic aerosols, since their composition is very likely similar to that of snow, as shown at the South Pole by comparison between our snow data and unpublished aerosols composition data by Maenhaut, Duce and Zoller. (Auth.)

34-732
West Antarctic ice sheet: present-day thinning and Holocene retreat of the margins.
Thomas, R.H., *Science*, Sep. 21, 1979, 205(4412), p.1257-1258, 20 refs.
Ice sheets, Ice shelves, Glacier oscillation, Ice models.
Retreat of the margins of the West Antarctic ice sheet associated with rising sea level during the last 15,000 years is the main cause for the thinning of the ice sheet by approximately 300 meters. The West Antarctic ice sheet during the late Wisconsin was at least 30 percent wider than it is today, and Holocene retreat of its margins has added about 6 meters to the world sea level. (Auth.)

34-733
Canadian geothermal data collection—northern wells 1976-77.
Taylor, A.E., et al, *Canada. Geothermal Service. Geothermal series*, 1977, No.10, 194p., In English with French summary. 3 refs.
Judge, A.S.
Geothermometry, Permafrost thickness, Canada—Northwest Territories.

34-734
Helicopter icing handling qualities.
Griffith, W.E., II, et al, New York, American Helicopter Society, 1974, 9p., 13 refs. Presented at the 30th annual national forum of the American Helicopter Society, Washington, D.C., May 1974.
Brewer, L.K.
Helicopters, Aircraft icing, Tests.

34-735
Freeze-up forecasting on the Great Lakes using weighted mean temperatures.
Rogers, J.C., Ann Arbor, Great Lakes Environmental Research Laboratory, 1975, 16 leaves, Unpublished manuscript. 3 refs.
Lake ice, Ice forecasting, Freezeup.

34-736
Compositional difference between Arctic aerosol and snow.
Rahn, K.A., et al, *Nature*, Aug. 9, 1979, 280(5722), p.479-480, 12 refs.
McCaffrey, R.J.
Aerosols, Snow composition, Air pollution.

34-737
20-yr cycle in Greenland ice core records.
Hibler, W.D., III, et al, *Nature*, Aug. 9, 1979, 280(5722), MP 1245, p.481-483, 26 refs.
Johnsen, S.J.
Ice cores, Drill core analysis, Isotope analysis, Periodic variations.
Oxygen isotope analysis of Greenland ice cores is made and the methods of analysis are described. Cyclic variations of about 20 yr seem to coincide with climatic oscillations and the Sun's motion about the center of mass of the Solar System. These periodic variations are compared with the oxygen isotope record in the ice cores.

34-738
Mars: the wet look.
Eberhart, J., *Science news*, Aug. 11, 1979, 116(6), p.108-110.
Mars (planet), Water supply, Frost, Permafrost distribution.

34-739
Annotated bibliography on northern environmental engineering 1976-1977.
Armstrong, B.C., comp, *Canada. Environmental Protection Service. Report*, Jan. 1979, EPS 3-WP-79-1, 132p.
Cameron, J.J., comp.
Bibliographies, Utilities, Waste disposal, Water supply, Water treatment, Pipeline insulation, Frost protection.

34-740
Tundra lakes as a source of fresh water: Kipnuk, Alaska.
Bredthauer, S.R., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Sep. 1979, SR 79-30, 16p., ADA-075 475, 12 refs.
Doerflinger, D.F.
Lake water, Tundra, Snowmelt, Water supply, Arctic regions.
A study of water quality in several small tundra lakes near Kipnuk, Alaska, was conducted to determine if the lakes were of sufficiently high quality during the snowmelt season to provide the village with enough water for a year-round supply. Since the village is located just 4 miles inland from the Bering Sea, primary emphasis was placed on locating water sources with low chloride concentrations. The tundra lakes were of sufficiently high quality to be pumped into a storage area during early summer to be used as a year round supply.

34-741
Dynamic thermodynamic sea ice model.
Hibler, W.D., III, *Journal of physical oceanography*, July 1979, 9(4), MP 1247, p.815-846, 51 refs.
Sea ice, Thermodynamics, Heat transfer, Ice cover thickness, Mathematical models.
A numerical model for the simulation of sea ice circulation and thickness over a seasonal cycle is presented. This model is used to investigate the effects of ice dynamics on arctic ice thickness and air-sea heat flux characteristics by carrying out several numerical simulations over the entire Arctic Ocean region. The essential idea in the model is to couple the dynamics to the ice thickness characteristics by allowing the ice interaction to become stronger as the ice becomes thicker and/or contains a lower areal percentage of thin ice. The dynamics, in turn, causes high oceanic heat losses in regions of ice divergence and reduced heat losses in regions of convergence. To model these effects consistently, the ice is considered to interact in a plastic manner with the plastic strength chosen to depend on the ice thickness and concentration. The thickness and concentration, in turn, evolve according to continuity equations which include changes in ice mass and percent of open water due to advection, ice deformation and thermodynamic effects.

34-742
Insulating and load-supporting properties of sulfur foam for expedient roads in cold regions.
Smith, N., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Sep. 1979, CR 79-18, 21p., ADA-074 694, 6 refs.
Pazsint, D.A.
Roads, Thermal insulation, Cellular materials, Bearing strength, Freeze thaw cycles.
Temperatures of the subgrade and of sulfur foam insulation test sections in an expedient road were monitored with thermocouples to document freezing and thawing conditions. Vehicular trafficking was conducted on a limited basis to determine the load supporting capabilities of the foam. The sulfur foam, placed directly under a prefabricated surface mat, was found to be unsuitable for use as an expedient thermal insulation and traffic load supporting material, primarily because of its low tensile strength and high brittleness. The insulating value of sulfur foam produced by the batch process in the field was about one-half that of extruded polystyrene, meaning double the thickness for equal protection against thaw.

34-743
Documentation of soil characteristics and climatology during five years of wastewater application to CRREL test cells.
Iskandar, I.K., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, July 1979, SR 79-23, 82p., ADA-074 712, 14 refs.
Quarry, S.T., Bates, R.E., Ingersoll, J.
Waste disposal, Water treatment, Soil chemistry, Climatology, Meteorological data.
Section 1 deals with physical properties of the two soils used and the changes in soil chemical characteristics. The physical properties of the soil are those most important in controlling the rate of water movement in soils, such as saturated and unsaturated soil hydraulic conductivity, particle size distribution, bulk density, void ratio, available water and specific gravity. The chemical characteristics of the soil that are of potential importance in assessing the short and long-term effects of wastewater application on land include: free iron oxides, organic carbon, organic nitrogen, pH, conductivity, cation exchange capacity, exchangeable cations, total and extractable phosphorus, and total and extractable heavy metals. Section 2 summarizes climatic conditions at the CRREL site in Hanover, New Hampshire, and the changes that occurred during the period 1974 to 1978. Climatic parameters include temperature, precipitation, wind speed, and soil temperature at depth.

34-744
Determination of dissolved nitrogen and oxygen in water by headspace gas chromatography.
Leggett, D.C., *U.S. Army Cold Regions Research and Engineering Laboratory*, July 1979, SR 79-24, 5p., ADA-074 411, 25 refs.
Lake water, Water chemistry.
In this study dissolved oxygen and nitrogen were determined by shaking 20 to 25 ml of water with an equal amount of helium in a 50-ml gas-tight syringe and injecting 2 ml of the equilibrated headgas into a gas chromatograph. Oxygen and nitrogen were separated on a 5-A molecular sieve column at ambient temperature and detected with a hot wire detector, using atmospheric air for calibration. Advantages of this method over previously reported methods are 1) oxygen and nitrogen are determined in a single analysis, 2) no specifically fabricated stripping apparatus is needed, and 3) analysis can be done in the field with completely portable, battery-operated equipment. The method appears to be accurate and reproducible; several lake O2 and N2 profiles were obtained using this technique.

34-745
Extending the useful life of DYE-2 to 1986, Part 1: Preliminary findings and recommendations.
Tobiasson, W., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, July 1979, SR 79-27, 15p., ADA-074 733, 3 refs.
Korhonen, C., Redfield, R.
Cold weather construction, Ice sheets, Steel structures, Stresses.
DEW Line Ice Cap Station DYE-2 appears to need major work within the next few years to extend its useful life to 1986. The

structural steel frame is overstressed in a few areas, and the lower portion of the subsurface timber truss enclosure is in bad condition. Additional performance measurements are needed during 1979 to determine the rate of secondary stress in the structural steel frame and the rate of deterioration of the truss enclosure. With this information, a decision can be made whether to move the building sideways onto a new undistorted foundation or to stabilize it in-place by encapsulating the lower 52 ft of the substructure in ice.

34-746
Utilization of sewage sludge for terrain stabilization in cold regions, Part 2.
Gaskin, D.A., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Aug. 1979, SR 79-28, 36p., ADA-074 725, 10 refs. For Part 1 see 32-1368.
Palazzo, A.J., Rindge, S.D., Bates, R.E., Stanley, L.E.
Sludges, Sewage disposal, Soil stabilization, Vegetation.
From June 1975 to Sep. 1976, a research/demonstration study was conducted at CRREL in Hanover, New Hampshire, to investigate the use of sewage sludge, commercial fertilizer and cultivation techniques for terrain stabilization in cold regions. Twenty-seven test plots on a 16-deg west-facing slope received various combinations of: 1) surface preparation (tiling, bulldozer tracking, or compacting), 2) nutrient source (sewage sludge or fertilizer), 3) mulching agent (wood fiber mulch or peat moss), and 4) tacking agent (Terra Tack III or Curasol). The plots were seeded in either the spring or fall with a constant seed mixture. The effectiveness of the treatments was determined through vegetation yields and soil loss measurements.

34-747
Phenomenological description of the acoustic emission response in several polycrystalline materials.
St. Lawrence, W., *Journal of testing and evaluation*, July 1979, 7(4), MP 1246, p.223-228, 11 refs.
Snow deformation, Snow cover structure, Snow acoustics, Acoustic measurement, Models.
The pattern of acoustic emission response in snow subjected to constant deformation rates is examined. The structural character of snow is discussed, and an equation that describes the pattern of the acoustic emission response is derived. Comparison between the predicted acoustic response and experimental data is made and the agreement is shown to be excellent. The acoustic emission response for 7075-T6 aluminum and iron-3% silicon subjected to constant rates of deformation is also considered. The acoustic emission equation derived for snow represents the response in these materials. It is suggested that the internal fracture concept used to develop the model for snow may also apply to other densely packed polycrystalline materials.

34-748
Probabilities of blowouts in Canadian Arctic waters.
Bercha (F.G.) and Associates, Ltd., *Canada. Environmental Protection Service. Report*, Oct. 1978, EPS 3-EC-78-12, 139p., In English with French summary. 73 refs.
Offshore drilling, Statistical analysis, Oil spills.

34-749
Dielectric properties of polymer materials in different climatic conditions. ⌜Dielektricheskie svoïstva polimernykh materialov v razlichnykh klimaticheskikh usloviiakh⌝,
Filatov, I.S., Novosibirsk, Nauka, 1979, 129p., In Russian with English table of contents enclosed. 60 refs.
Construction materials, Plastics, Polymers, Dielectric properties, Freeze thaw cycles, Cold weather performance.

34-750
Water supply and sewage in areas of permafrost and severe climate. ⌜Nekotorye problemy vodosnabzheniia i kanalizatsii v raïonakh vechnoï merzloty i surovogo klimata⌝,
Stegantsev, V.P., *Stroitel'stvo v raïonakh Vostochnoï Sibiri i Kraïnego Severa*, 1974, Vol.32, p.3-13, In Russian.
Pipelines, Water supply, Sewage disposal, Permafrost beneath structures, Permafrost hydrology.

34-751
Intensifying the performance of incomplete dug-out wells. ⌜Predlozheniia po intensifikatsii raboty nesovershennykh shakhtnykh kolodtsev⌝,
IAkunin, IU.V., *Stroitel'stvo v raïonakh Vostochnoï Sibiri i Kraïnego Severa*, 1974, Vol.32, 14-22, In Russian. 4 refs.
Water supply, Water pipelines, Wells, Permafrost, Water intakes.

34-752
Performance of seepage tanks with trapezoidal cross sections and impervious slopes. ⌜Rabota infil'tratsionnogo basseïna trapetseidal'nogo secheniia s nepronitsaemymi otkosami⌝,
Bogoliubov, K.S., et al, *Stroitel'stvo v raïonakh Vostochnoï Sibiri i Kraïnego Severa*, 1974, Vol.32, p.23-28, In Russian. 4 refs.
Braga, P.A.
Water supply, Lakes, Tanks (containers), Seepage, Concrete structures, Design.

34-753
Studying river bed alluvium for designing seepage water intakes. ⌜Izuchenie rechnykh alliuvial'nykh otlozheniï primenitel'no k ustroïstvu infil'tratsionnykh vodozaborov⌝,
Poriadin, A.F., *Stroitel'stvo v raïonakh Vostochnoï Sibiri i Kraïnego Severa*, 1974, Vol.32, p.29-51, In Russian. 18 refs.
Water supply, Rivers, Water intakes, Alluvium, Permafrost beneath rivers.

34-754
Calculating water inflow into incomplete dug-out wells allowing for riverbed silting. ⌜Raschet pritoka vody v nesovershennye shakhtnye kolodtsy s uchetom zaileniia rusla reki⌝,
IAkunin, IU.V., *Stroitel'stvo v raïonakh Vostochnoï Sibiri i Kraïnego Severa*, 1974, Vol.32, p.52-81, In Russian. 27 refs.
Water supply, Wells, Rivers, Water intakes, Silting, Permafrost beneath rivers.

34-755
Graphic calculation of dug-out vacuum wells. ⌜Graficheskiï raschet shakhtnykh vakuum-kolodtsev⌝,
Sokolova, L.V., *Stroitel'stvo v raïonakh Vostochnoï Sibiri i Kraïnego Severa*, 1974, Vol.32, p.82-88, In Russian. 6 refs.
Water supply, Wells, Water flow, Permafrost.

34-756
Combined portable fluid-level warning device. ⌜Kombinirovannyï perenosnyï signalizator urovnia zhidkosti⌝,
Zhukov, B.P., et al, *Stroitel'stvo v raïonakh Vostochnoï Sibiri i Kraïnego Severa*, 1974, Vol.32, p.89-93, In Russian. 1 ref.
Nazarenko, A.S.
Pumps, Water supply, Water level, Warning systems, Pipelines, Water intakes.

34-757
Transfer of heat from a surface source along pipe walls. ⌜Teploperedacha po stenke truby pri deïstvii poverkhnostnogo teploistochnika⌝,
Kardymon, V.F., *Stroitel'stvo v raïonakh Vostochnoï Sibiri i Kraïnego Severa*, 1974, Vol.32, p.94-106, In Russian. 4 refs.
Water supply, Pipeline freezing, Water pipelines, Electric heating, Heat transfer, Heating cables.

34-758
Thermal regime of water pipelines built in seasonally freezing ground. ⌜Teplovoï rezhim vodoprovodnykh seteï, ulozhennykh v sloe sezonnogo promerzaniia grunta⌝,
Pereleshin, R.S., et al, *Stroitel'stvo v raïonakh Vostochnoï Sibiri i Kraïnego Severa*, 1974, Vol.32, p.107-210, In Russian.
Semenov, L.P.
Water pipelines, Permafrost beneath structures, Active layer, Ground thawing, Pipeline freezing, Thermal regime, Soil temperature.

34-759
Field studies of temperature regime of water pipelines in deep seasonally freezing ground. ⌜Naturnye issledovaniia temperaturnogo rezhima vodovodov, ulozhennykh v sloe glubokogo sezonnogo promerzaniia grunta⌝,
Pereleshin, R.S., et al, *Stroitel'stvo v raïonakh Vostochnoï Sibiri i Kraïnego Severa*, 1974, Vol.32, p.121-126, In Russian.
Semenov, L.P.
Water pipelines, Thermal regime, Seasonal freeze thaw, Pipeline freezing, Soil temperature.

34-760
Improving natural ventilation of underground utility ducts under permafrost conditions. ⌜Sposoby uluchsheniia ventiliatsii s estestvennym pobuzhdeniem podzemnykh kommunikatsionnykh kanalov v usloviiakh vechnomerzlykh gruntov⌝,
Ivont'ev, V.V., *Stroitel'stvo v raïonakh Vostochnoï Sibiri i Kraïnego Severa*, 1974, Vol.32, p.127-136, In Russian. 1 ref.
Utilities, Ducts, Ventilation, Permafrost beneath structures, Foundations, Permafrost control.

34-761
Experimental study of anchor support performance. ⌜Eksperimental'nye issledovaniia raboty ankernoï opory⌝,
Danilova, N.P., *Stroitel'stvo v raïonakh Vostochnoï Sibiri i Kraïnego Severa*, 1974, Vol.32, p.137-147, In Russian. 2 refs.
Pipelines, Permafrost beneath structures, Pipeline supports, Anchors.

34-762
Use of nonmetallic pipelines in construction. ⌜Primenenie nemetallicheskikh truboprovodov v stroitel'stve⌝,
Borshcheva, N.I., et al, *Stroitel'stvo v raïonakh Vostochnoï Sibiri i Kraïnego Severa*, 1974, Vol.32, p.148-151, In Russian.
Dem'ianova, T.A.
Cements, Pipelines, Reinforced concretes, Construction materials, Plastics, Concretes, Permafrost beneath structures, Asbestos.

34-763
Rational use of water by Krasnoyarsk factories. ⌜Effektivnost' ispol'zovaniia vody na predpriiatiiakh Krasnoiarska⌝,
Stegantsev, V.P., et al, *Stroitel'stvo v raïonakh Vostochnoï Sibiri i Kraïnego Severa*, 1974, Vol.32, p.152-158, In Russian. 5 refs.
Bubentsov, V.N., Emelina, Z.G.
Industrial buildings, Water supply, Sewage, Environmental protection, Water pollution, Water treatment.

34-764
Filter purification of waste waters from tire factories. ⌜Ochistka proizvodstvennykh vod shinnogo zavoda metodom fil'trovaniia⌝,
Emelina, Z.G., et al, *Stroitel'stvo v raïonakh Vostochnoï Sibiri i Kraïnego Severa*, 1974, Vol.32, p.159-169, In Russian. 4 refs.
Rozhkovskaia, T.M.
Water supply, Petroleum industry, Wastes, Water treatment, Filters, Permafrost, Chemical industry.

34-765
Experimental project of sewage systems for the *Pionerskaia Rechka* sanatorium. ⌜Eksperimental'nyï proekt ochistnykh sooruzheniï sanatoriia "Pionerskaia rechka"⌝,
Mochalov, I.P., et al, *Stroitel'stvo v raïonakh Vostochnoï Sibiri i Kraïnego Severa*, 1974, Vol.32, p.170-177.
Stepanov, V.A., Suroiakov, I.M.
Sanitary engineering, Permafrost beneath structures, Sewage treatment, Sewage disposal, Water treatment.

34-766
Waste water purification in small northern settlements. ⌜Ochistka stochnykh vod nebol'shikh severnykh poseleniï⌝,
Mochalov, I.P., *Stroitel'stvo v raïonakh Vostochnoï Sibiri i Kraïnego Severa*, 1974, Vol.32, p.178-188, In Russian. 9 refs.
Sanitary engineering, Sewage treatment, Sewage disposal.

34-767
Vegetation and climate on Coburg Island, N.W.T.
Muller, H., *Polar geography*, July-Sep. 1979, 3(3), p.139-147, 6 refs.
Plant ecology, Arctic landscapes, Wind factors, Wind direction, Canada—Northwest Territories—Coburg Island.

34-768
Engineering geology of the U.S.S.R. Vol.5, Altai and Ural Mountains. ⌜Inzhenernaia geologiia SSSR. Tom piatyï, Altaï, Ural⌝,
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Popov, I.V., ed, Tereshkov, G.M., ed.
Engineering geology, Geocryology, Permafrost distribution, Permafrost thickness, Solifluction, Thermokarst, Frozen fines, Clays, Ground ice, Permafrost weathering.

34-769
Operation of airports. Maintenance and repairs. Manual. ⌜Ekspluatatsiia aerodromov. Soderzhanie i remont. Spravochnik⌝,
Goretskiï, L.I., et al, Moscow, Transport, 1979, 215p., In Russian with abridged English table of contents enclosed. 25 refs.
Airports, Winter maintenance, Cold weather operation.

34-770
Alaska Mining and Water Quality: proceedings of the symposium. *Alaska. University. Institute of Water Resources. Report*, Apr. 1979, IWR 93, 82p., Numerous refs.
Meetings, Mining, Water quality.

34-771
Report of the Joint U.S.-Canadian Northern Civil Engineering Research Workshop.
Carlson, R.F., ed. Alaska. University. Institute of *Water Resources. Report,* Mar. 1978, IWR 96, 72p., Workshop met in March 1978 at the University of Alberta in Edmonton.
Morgenstern, N.R., ed.
Meetings, Engineering, Research projects, Natural resources, Ice, Snow, Frozen ground, Hydrology, Hydraulic structures, Environmental protection, Utilities.

34-772
Glaciological and marine biological studies at perimeter of Dronning Maud Land, Antarctica. Final report.
Orheim, O., *National Aeronautics and Space Administration. Contractor report,* June 1977, NASA-CR-155210, 17p., N78-10532, 4 refs.
Sea ice distribution, Remote sensing, Icebergs, Mapping, Spaceborne photography, Ice floes, Antarctica —Queen Maud Land.
The author has identified the following significant results. A nearly complete map of the Dronning Maud Land coastline from 10W to 29E was produced. Based on this, it was determined that for the past 20 years the minimum calving rate from this part of the coastline was 60 cu km/year. The drift speeds were measured for ice floes and bergs between 9 and 20 km/day, and it was found that the number of ice floes of a given size decreases exponentially with size, so that each size class covers approximately the same area. A large melt phenomenon at blue ice fields around 70.7S and 26-29E was discovered.

34-773
Methods for prediction of the influence of ice on aircraft flying characteristics.
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Aircraft icing, Flight characteristics.

34-774
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Dickins, D., Wright, B.
Sea ice, Ice pileup, Offshore structures, Ice scoring, Ice bottom surface, Acoustic measuring instruments, Profiles, Ice floes.

34-775
Growth and decay of "Katie's floeberg".
Barrett, S.A., et al, UAG R-256, Fairbanks, University of Alaska, Geophysical Institute, Mar. 1978, 34p., 5 refs.
Stringer, W.J.
Ground ice, Pack ice, Ice growth, Ice deterioration, Wind factors, Surface temperature, Remote sensing.

34-776
Magnetic markers for glacier mass balance and velocity measurements.
Harrison, W.D., et al, UAG R-254, Fairbanks, University of Alaska, Geophysical Institute, Mar. 1978, 45p., 6 refs.
MacKeith, P., Ferguson, S.A.
Glacier mass balance, Glacier flow, Velocity, Markers, Magnetic surveys, Accuracy.

34-777
How Montreal copes with 98 inches of snow.
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Snow removal, Canada—Quebec—Montreal.

34-778
Numerical simulation of jet roof geometry for snow cornice control.
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Lang, T.E.
Snow cornices, Air flow, Mountains, Mathematical models, Environment simulation.

34-779
Frost gauges and freezing gauges.
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Van Everdingen, R.O.
Measuring instruments, Soil freezing, Frost, Temperature measurement, Electrical resistivity.

34-780
Uplift of objects by an upfreezing ice surface.
Mackay, J.R., et al, *Canadian geotechnical journal,* 1979, 16(1), p.60-68, In English with French summary. 14 refs.
Burrous, C.
Ground ice, Frost heave, Active layer, Continuous permafrost.

34-781
Study of sub-seabottom permafrost in the Beaufort Sea Mackenzie Delta by hydraulic drilling methods.
MacAulay, H.A., et al, *Canada. Geological Survey. Open file report,* Spring 1978, No.624, c.45 leaves, In English with French summary. 5 refs.
Offshore drilling, Hydraulics, Subsea permafrost, Temperature measurement.

34-782
Road insulation with polystyrene foam.
Gandahl, R., *Sweden. Statens väg- och trafikinstitut. Rapport,* 1979, No.180, 32p., 7 refs. For Swedish original see 32-691.
Subgrade preparation, Thermal insulation, Frost heave, Cellular plastics.

34-783
Measures against skidding on icy and snow roads. Problem analysis, state-of-the-art review and need for R&D. [Atgärder mot snö- och ishalka. Problemanalys, kunskapsöversikt och behov av FoU].
Carlsson, G., *Sweden. Statens väg- och trafikinstitut. Rapport,* 1979, No.182, 52p.
Snow removal, Ice removal, Skid resistance, Safety.

34-784
Remote estimation of the properties of sea ice, impulse radar study of Lake Melville, Labrador.
Butt, K.A., et al, *Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering. C-CORE publication,* Aug. 1979, No.79-7, c.215 leaves, 7 refs.
Gamberg, J.B., Rossiter, J.R.
Sea ice, Radar echoes, Remote sensing, Computer applications.

34-785
Iceberg population distribution study in the Labrador Sea.
Gustajtis, K.A., *Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering. C-CORE publication,* July 1979, No.79-8, 41p., 15 refs.
Icebergs, Offshore structures, Impact, Distribution.

34-786
Field observations of the kinematics of hailstones.
Matson, R., et al, *National Center for Atmospheric Research. Technical note,* June 1979, NCAR/TN-139+STR, 68p., 19 refs.
Huggins, A.W.
Hailstones, Dynamic properties, Falling bodies, Physical properties.

34-787
Environmental radioactivity in the Faroes in 1977.
Aarkrog, A., et al, *Risö National Laboratory, Copenhagen. Risö report,* July 1978, No.387, 27p., 5 refs.
Lippert, J.
Radioactivity, Fallout, Precipitation (meteorology), Environmental impact, Denmark—Faroe Islands.

34-788
Environmental radioactivity in Greenland in 1977.
Aarkrog, A., et al, *Risö National Laboratory, Copenhagen. Risö report,* July 1978, No.388, 20p., 4 refs.
Lippert, J.
Radioactivity, Fallout, Precipitation (meteorology), Environmental impact, Greenland.

34-789
Molten state of matter—melting and crystal structure.
Ubbelohde, A.R., New York, John Wiley and Sons, 1978, 454p., Refs. passim.
Ice crystal structure, Molecular structure, Ice water interface, Melting, Thermodynamics, Freezing, Heavy water, Crystals.

34-790
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Ives, J.D., ed, *Arctic and alpine research,* May 1978, 10(2), p.159-548, For selected papers see 34-791 through 34-802.
Zimina, R.P., ed.
Meetings, Mountains, Alpine landscapes, Avalanches, Snow line.

34-791
Natural hazards maps for land-use planning, San Juan Mountains, Colorado, U.S.A.
Ives, J.D., et al, *Arctic and alpine research,* May 1978, 10(2), p.185-212, 42 refs.
Bovis, M.J.
Mapping, Avalanches, Landslides, Slope processes.

34-792
Avalanches of the USSR and their influence on the formation of natural territory complexes.
Akif'eva, K.V., et al, *Arctic and alpine research,* May 1978, 10(2), p.223-233, 1 ref.
Volodicheva, N.A., Troshkina, E.S., Turmanina, V.I., Tushinskil, G.K.
Avalanches, Landscape development, Alpine landscapes, Damage.

34-793
Artificial release of avalanches in North America.
Perla, R., *Arctic and alpine research,* May 1978, 10(2), p.235-240, 7 refs.
Avalanche triggering, Explosion effects.

34-794
Geomorphic work of snow avalanches in the Canadian Rocky Mountains.
Luckman, B.H., *Arctic and alpine research,* May 1978, 10(2), p.261-276, 43 refs.
Avalanches, Avalanche deposits, Landscape development.

34-795
Glacial landscapes and their spatial variability in the temperate and subpolar latitudes.
Golubev, G.N., et al, *Arctic and alpine research,* May 1978, 10(2), p.277-282, 1 ref.
Kotliakov, V.M.
Glaciers, Landscape development, Periglacial processes, Classifications.

34-796
Permafrost investigations in high-mountain regions.
Gorbunov, A.P., *Arctic and alpine research,* May 1978, 10(2), p.283-294, 36 refs.
Alpine landscapes, Permafrost distribution, Frozen ground physics, Altitude, Snow line.

34-797
Soil forming factors in the Rocky Mountains of Southwestern Alberta, Canada.
Howell, J.D., et al, *Arctic and alpine research,* May 1978, 10(2), p.313-324, Refs. p.322-324.
Harris, S.A.
Weathering, Mountain soils, Soil formation, Cryogenic soils, Geocryology, Soil water migration, Frost shattering, Avalanches, Forest fires.

34-798
Dynamics of the vegetation in the Mount Elbrus Region, USSR.
Turmanina, V.I., et al, *Arctic and alpine research,* May 1978, 10(2), p.325-334, 5 refs.
Volodina, E.R.
Alpine landscapes, Plant ecology, Ecosystems, Biomass, Slope processes, Avalanches.

34-799
Dynamics of avalanche natural complexes: an example from the high mountain Teberda State Reserve, Caucasus Mountains, USSR.
Khapaev, S.A., *Arctic and alpine research,* May 1978, 10(2), p.335-344, 3 refs.
Avalanche mechanics, Trees (plants), Age determination.

34-800
Upper forest limit in the mountains of the Boreal Zone of the USSR.
Gorchakovskil, P.L., et al, *Arctic and alpine research,* May 1978, 10(2), p.349-363, Refs. p.360-363. For Russian version see 32-4609.
Shiiatov, S.G.
Trees (plants), Forest lines, Snow line, Climate, Periodic variations.

34-801
Main characteristics of the ecosystems of the Pamirs, USSR.
Agakhaniants, O.E., et al, *Arctic and alpine research,* May 1978, 10(2), p.397-407, 37 refs.
Lopatin, I.K.
Alpine landscapes, Plants (botany), Ecosystems.

34-802
Critical velocities of a floating ice plate subjected to in-plane forces and a moving load.
Kerr, A.D., *U.S. Army Cold Regions Research and Engineering Laboratory,* Aug. 1979, CR 79-19, 12p., ADA-075 455, 6 refs.
Floating ice, Dynamic loads, Velocity.
The critical velocities of loads moving over floating ice plates have been determined by several authors. In all these analyses

it was assumed that the in-plane force field in the ice cover is zero. However, due to constrained thermal strains, in-plane forces do occur in the field. The purpose of the present paper is to determine their effect upon the critical velocities of the moving loads. It is shown that a uniform compression force field reduces the critical velocity, whereas a tension force has the opposite effect.

34-803
Flying on a wheel. [Poletaem na kolese].
Pikul', V., *Izobretatel' i ratsionalizator,* 1979, No.6, p.26-28, In Russian.
All terrain vehicles, Air cushion vehicles.

34-804
Ice cover parametrization in global models of ocean-atmosphere interactions. [O parametrizatsii ledianogo pokrova v global'nykh modeliakh vzaimodeistviia okeana i atmosfery].
Belevich, M.IU., *Meteorologiia i gidrologiia,* July 1979, No.7, p.91-97, In Russian with English summary. 2 refs.
Sea ice, Mathematical models, Ice cover thickness, Ice surface, Surface temperature, Snow cover effect.

34-805
Regularities governing properties of mortars. [O nekotorykh zakonomernostiakh v svoistvakh stroitel'nykh rastvorov].
Ryb'ev, I.A., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura,* 1979, No.4, p.64-67, In Russian. 5 refs.
Nikulin, V.T.
Mortars, Cements, Cement admixtures, Frost resistance, Seasonal freeze thaw.

34-806
Using frozen ground in earth dam construction. [O primenenii merzlykh gruntov dlia vozvedeniia plotin].
Kuznetsov, G.I., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura,* 1979, No.4, p.92-96, In Russian. 8 refs.
Baliasnikov, G.G.
Hydraulic structures, Earth dams, Frozen fines, Permafrost beneath structures.

34-807
Concepts and variables in the thermal stability theory of building walls. [O poniatiiakh i velichinakh teorii teploustoichivosti ograzhdaiushchikh konstruktsii zdanii].
Nasedkin, V.V., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura,* 1979, No.4, p.101-106, In Russian. 13 refs.
Walls, Thermal conductivity, Theories, Buildings.

34-808
Kinetics of cement hardening during thermal treatment of concrete bases of road pavements in freezing weather. [Kinetika tverdeniia tsementnogo kamnia pri teplovoi obrabotke betonnogo osnovaniia dorozhnykh odezhd v zimnikh usloviiakh].
Shkurenko, V.I., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura,* 1979, No.4, p.113-117, In Russian. 7 refs.
IAnchikov, V.F.
Pavements, Bitumens, Foundations, Concretes, Winter concreting, Roads.

34-809
Studying correlation functions of frozen ground cutting stresses. [Issledovanie korreliatsionnykh funktsii sil rezaniia merzlogo grunta].
Solomonov, S.A., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura,* 1979, No.4, p.122-127, In Russian. 4 refs.
Earthwork, Cutting tools, Design, Frozen ground.

34-810
Testing welded pipe joints at low temperatures. [Ispytaniia svarnykh uzlov struktur iz trub pri nizkikh temperaturakh].
Sil'vestrov, A.V., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura,* 1979, No.4, p.133-136, In Russian. 2 refs.
Semenovich, M.D., Erokhin, K.A.
Pipes (tubes), Joints (junctions), Welding, Low temperature tests.

34-811
Effect of cryogenic processes on the formation of gold-scattering water flows. [Vliianie kriogennykh protsessov na formirovanie vodnykh potokov rasseianiia zolota].
Pliusnin, A.M., et al, *Akademiia nauk SSSR. Doklady,* 1979, 247(3), p.700-703, In Russian. 8 refs.
Pogrebniak, IU.F., Tat'iankina, E.M.
Mining, Gold, Solutions, Freeze thaw cycles, Meltwater, Phase transformations, Water chemistry, Isotope analysis.

34-812
Railway track switch that operates in snow and ice.
Coveney, D.B., *National Research Council, Canada. Division of Mechanical Engineers and the National Aeronautic Establishment. Quarterly bulletin,* July 1979, No.2, p.25-73, 6 refs.
Railroad equipment, Cold weather operation, Snow accumulation, Ice accretion, Railroad switches.

34-813
Program and abstracts.
International Polar Meeting, 11th, Berlin, Oct. 4-7, 1978, Berlin, Deutsche Gesellschaft für Polarforschung, 1978, c50p., In German and English. Refs. passim.
Glaciology, Marine biology, Geomorphology, Climate, Tundra, Meetings.
The work program of the 11th International Polar Meeting marking the 150th anniversary of the Berlin Geographical Society, consisted of studies of the Arctic and Antarctic. This volume of abstracts of papers presented at the meeting includes the following topics: glaciology, marine biology (special attention to krill), geomorphology, climatology and tundra ecosystem. Scientists from the U.S., Argentina, Germany, Austria and Canada participated.

34-814
Proceedings.
Symposium on Meteorological Observations from Space: Their Contribution to the First GARP Global Experiment, Philadelphia, June 8-10, 1976, Boulder, Colo., National Center for Atmospheric Research, Sep. 1976, 424p., Refs. For selected articles see 34-815 through 34-821, or F-22387 through F-22389 and I-22390.
Sea ice, Snow cover, Climate, Spaceborne photography, Ice cover.
The symposium, the proceedings of which are presented in this volume, was held to review the status of the global observing system coming into being to support the First GARP Global Experiment. The papers and abstracts are assembled in six sessions. The list of topics of the various sessions represent those special kinds of space-based observations that are needed to complement ground-based observations in order to meet the observational requirements for the First GARP Global Experiment. The topics of the sessions are: Temperature and humidity fields derived from satellite observations; Surface characteristics of importance to weather and climate; Wind determination from geostationary satellites; Role of the earth's radiation budget in atmospheric dynamics; Data collection systems and some programmatic developments; and Application of satellite data to numerical analysis and prediction.

34-815
Characteristics of antarctic sea ice as determined by satellite-borne microwave imagers.
Zwally, H.J., et al, Symposium on Meteorological Observations from Space: Their Contribution to the First GARP Global Experiment, Philadelphia, June 8-10, 1976, Proceedings, Boulder, Colo., National Center for Atmospheric Research, Sep. 1976, p.94-97, 7 refs.
Wilheit, T.T., Gloersen, P., Mueller, J.L.
Sea ice distribution, Polynyas, Ocean currents, Wind factors.
Features of the antarctic sea ice, such as detailed variations in ice extent and areas of ice divergence induced by winds or ocean currents, can be discerned in microwave images. Images with resolutions of about 30 km are produced from the Electrically Scanning Microwave Radiometers (ESMR) having wavelengths of 1.55 cm on Nimbus 5 and 0.81 cm on Nimbus 6. For the GARP data system tests, weekly maps of sea ice coverage are generated showing the percent of open water in each cell. More detailed studies of the dynamics and thermodynamics of the sea ice, and its interaction with the ocean and atmosphere, are in progress using 3-day average pseudo-color images and maps of ice boundaries. During the austral winters, polynyas and areas of reduced ice concentration are observed.

34-816
Satellite observations of snow and ice with an imaging passive microwave spectrometer.
Fisher, A.D., et al, Symposium on Meteorological Observations from Space: Their Contribution to the First GARP Global Experiment, Philadelphia, June 8-10, 1976, Proceedings, Boulder, Colo., National Center for Atmospheric Research, Sep. 1976, p.98-103, 8 refs.
Ledsham, B.L., Rosenkranz, P.W., Staelin, D.H.
Sea ice, Snow cover, Brightness, Ice models, Thermal properties, Ice temperature, Snow temperature, Spectroscopy.
The scanning microwave spectrometer (SCAMS) on the Nimbus-6 satellite continuously maps the terrestrial surface and yields brightness temperatures which are a function of the distribution and character of various types of snow and ice, including microstructure and subsurface profiles in refractive index, loss (moisture, salinity) and temperature. To aid in the interpretation of this data, a model was developed to describe the propagation of microwave intensity in a scattering medium characterized by three-dimensional random fluctuations of refractive index in addition to non-random variations in permittivity, temperature, and loss. The model combines Maxwell's equations in the Born approximation with radiative transfer theory and has been applied to the thermal emission of snow and ice in Antarctica and Greenland.

34-817
Sea ice modeling: its testing with LANDSAT and potential use in FGGE.
Hall, R.T., et al, Symposium on Meteorological Observations from Space: Their Contribution to the First GARP Global Experiment, Philadelphia, June 8-10, 1976, Proceedings, Boulder, Colo., National Center for Atmospheric Research, Sep. 1976, p.104-109, 9 refs.
Maykut, G.A., Rothrock, D.A.
Sea ice, Stresses, Ice models, Ice cover thickness, Heat transfer, Remote sensing, Mass balance, AIDJEX.

34-818
Global variation of snow and ice extent.
Kukla, G.J., Symposium on Meteorological Observations from Space: Their Contribution to the First GARP Global Experiment, Philadelphia, June 8-10, 1976, Proceedings, Boulder, Colo., National Center for Atmospheric Research, Sep. 1976, p.110-115, 23 refs.
Snow cover distribution, Sea ice, Ice cover, Charts, Climate.
Snow in the northern hemisphere formed earlier in the year and covered a substantially larger area on an annual average during 1971-73 than in the rest of the 1967-1975 interval. The differences are largest in autumn and spring. The anomaly was associated with diminished summer ice coverage in the Barents Sea and more snow in Central Asia. Preliminary examination of antarctic ice charts indicates a similar fluctuation apparently in phase with the northern hemisphere. (Auth.)

34-819
Monitoring earth surface characteristics important to weather and climate with earth satellites.
McClain, E.P., Symposium on Meteorological Observations from Space: Their Contribution to the First GARP Global Experiment, Philadelphia, June 8-10, 1976, Proceedings, Boulder, Colo., National Center for Atmospheric Research, Sep. 1976, p.129-135, 48 refs.
Sea ice distribution, Snow cover distribution, Ice cover thickness, Spaceborne photography.
Many of the observational requirements specified for the First GARP Global Experiment and for the GARP Climate Dynamics Subprogram are variables classified as Earth surface characteristics. Many of these characteristics are such that the required space and time resolutions of the observational data can be met only with the aid of data gathered by Earth satellites. Among the variables in question are sea, ice, and land surface temperature; snow conditions; sea ice conditions; wind stress over the ocean and surface currents; and soil moisture. This paper reviews progress in satellite data applications with respect to the monitoring of these surface characteristics, with emphasis upon the use of operational environmental satellites of the USA. The satellite-documented drift of an antarctic iceberg is illustrated and briefly discussed.

34-820
Satellite ice surveillance studies in the Arctic in relationship to the general circulation.
Haupt, I., et al, Symposium on Meteorological Observations from Space: Their Contribution to the First GARP Global Experiment, Philadelphia, June 8-10, 1976, Proceedings, Boulder, Colo., National Center for Atmospheric Research, Sep. 1976, p.179-187, 4 refs.
Kant, V.
Ice conditions, Sea ice distribution, Atmospheric circulation.

34-821
Arctic odyssey—five years of data buoys in AIDJEX.
Martin, P., et al, Symposium on Meteorological Observations from Space: Their Contribution to the First GARP Global Experiment, Philadelphia, June 8-10, 1976, Proceedings, Boulder, Colo., National Center for Atmospheric Research, Sep. 1976, p.328-334, 11 refs.
Gillespie, C.R.
Sea ice, Drift, Measuring instruments, AIDJEX.

34-822
Seasonal rhythms in alpine tundra plant communities of the Urals. [Sezonnaia ritmika rastitc kh soobshchestv gornykh tundr Urala],
Gorchakovskiĭ, P.L., et al, *Ekologiia,* July Aug. 1979, No.4, p.16-24, In Russian. 12 refs.
Bulatova, I.K.
Plant ecology, Alpine tundra, Ecosystems.

34-823
Regularities governing altitudinal distribution of steppe plant communities in Alashsk plateau, Tuva Autonomous Region. [Zakonomernosti vysotnogo raspredeleniia stepnykh soobshchestv Alashskogo plato Tuvinskoĭ ASSR],
Namzalov, B.B., *Ekologiia,* July-Aug. 1979, No.4, p.43-52, In Russian. 10 refs.
Alpine landscapes.

34-824
Landscape-ecological basis for forest melioration and biological recultivation of lands along the Tobol'sk-Amudar'ya channel. [K landshaftno-ekologicheskomu obosnovaniiu lesomelioratsii i biologicheskoĭ rekul'tivatsii zemel' po trasse kanala Tobol'sk-Amudar'ia],
Chibilev, A.A., *Ekologiia,* July-Aug. 1979, No.4, p.91-93, In Russian.
Land reclamation, Forestry, Swamps, Taiga.

34-825
Problems in swamp hydrology. [Voprosy gidrologii bolot],
Novikov, S.M., ed, *Leningrad. Gosudarstvennyĭ gidrologicheskiĭ institut. Trudy,* 1979, Vol.261, 134p., In Russian. For selected papers see 34-826 through 34-834. Refs. passim.
Swamps, Microrelief, Geocryology, Permafrost distribution, Permafrost structure, Active layer, Permafrost hydrology, Evaporation, Subsurface drainage, Surface drainage, Thermal analysis.

34-826
Nature and classification of palsa bogs. [O prirode i klassifikatsii bugristykh bolot],
Novikov, S.M., et al, *Leningrad. Gosudarstvennyĭ gidrologicheskiĭ institut. Trudy,* 1979, Vol.261, p.3-13, In Russian. 14 refs.
Usova, L.I.
Swamps, Microrelief, Geocryology, Hummocks, Permafrost hydrology, Ground ice.

34-827
Microrelief identification criteria of palsa bogs. [Deshifrovochnye priznaki bolotnykh mikrolandshaftov bugristykh torfianikov],
Novikov, S.M., et al, *Leningrad. Gosudarstvennyĭ gidrologicheskiĭ institut. Trudy,* 1979, Vol.261, p.14-26, In Russian. 6 refs.
Usova, L.I.
Swamps, Aerial surveys, Photointerpretation, Geobotanical interpretation, Hummocks, Peat, Vegetation patterns.

34-828
Studying water level regime of palsa bogs. [K voprosu izucheniia urovennogo rezhima vod bugristykh bolot],
Moskvin, IU.P., *Leningrad. Gosudarstvennyĭ gidrologicheskiĭ institut. Trudy,* 1979, Vol.261, p.27-37, In Russian. 3 refs.
Swamps, Microrelief, Hummocks, Ground water, Water table, Permafrost hydrology, Permafrost structure.

34-829
Calculating water level of palsa bogs from meteorological data. [Metodika rascheta urovnei vody bugristykh bolot po meteorologicheskim dannym],
Novikov, S.M., et al, *Leningrad. Gosudarstvennyĭ gidrologicheskiĭ institut. Trudy,* 1979, Vol.261, p.38-49, In Russian. 6 refs.
Kotova, L.V.
Swamps, Hummocks, Permafrost hydrology, Thermal regime, Water table, Meteorological data.

34-830
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Speir, T.W.
Soil science, Organic soils, Soil chemistry, Campbell Island.
Invertase, amylase, cellulase, hemicellulase, urease, phosphatase, and sulphatase activities were high, on a soil dry weight basis, in the top horizon of organic soils from 6 sites on subantarctic Campbell Island. They generally declined with soil depth, more rapidly than did organic C contents. The enzyme activities were correlated negatively, and generally significantly, with degree of peat decomposition and mainly non-significantly, although positively, with soil organic C and total N contents. All of the enzyme activities, with the partial exception of hemicellulase, were correlated significantly with each other and with soil oxygen uptakes. Most of the enzyme activities were appreciably higher in standing dead material of the tussock grass *Poa litorosa* than in the top horizon of soil at each site; sulphatase activity, however, was always lower in standing dead material, and urease activity varied with site. Although a direct contribution by tussock plant material to soil enzyme activities (except sulphatase) appears likely the levels of enzymes in these soils were (except for invertase) not directly related to the enzyme activities of tussock plant material. (Auth.)

34-895
Collected papers on sciences of atmosphere and hydrosphere, Volume 15.
Nagoya, Japan. University. Water Research Institute, Nagoya, University, 1977, var.p., Refs. passim. For selected articles see 32-962, 32-3816 and 34-896 through 34-906.
Glacier surveys, Mountain glaciers, Fallout, Glacier oscillation, Climatic factors, Topographic factors, Himalaya Mountains.

34-896
Characteristics of glaciers in the Khumbu region and their recent variations.
Moribayashi, S., et al, *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.3-6, Paper No.14. 3 refs.
Higuchi, K.
Glacier oscillation, Impurities, Glacier surveys, Mountain glaciers.

34-897
Statistical analyses of the forms of the glaciers in the Khumbu Himal.
Fujii, Y., et al, *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.7-14, Paper No.15. 8 refs.
Higuchi, K.
Glacier surfaces, Mountain glaciers, Topographic features, Impurities, Glacial deposits, Glacier beds, Statistical analysis.

34-898
Field experiment on glacier ablation under a layer of debris cover.
Fujii, Y., *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.20-21, Paper No.16. 5 refs.
Glacier mass balance, Ablation, Mountain glaciers, Impurities, Snow melting.

34-899
Ice cliffs and exposed stratigraphy of Kongma Glacier, Khumbu.
Wushiki, H., *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.22-25, Paper No.17. 3 refs.
Stratigraphy, Glacier surveys, Seasonal variations, Radioactive isotopes, Mountain glaciers.

34-900
Stratigraphic study of the snow cover in Khumbu Himal.
Inoue, J., et al, *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.26-29, Paper No.18. 2 refs.
Nagoshi, A.
Snow stratigraphy, Snow depth, Glacier surveys, Snow accumulation, Elevation.

34-901
Structural studies of glaciers in the Khumbu region.
Fushimi, H., *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.30-39, Paper No.19 7 refs.
Glacier flow, Ice structure, Mountain glaciers, Impurities, Ice crystal structure, Topographic features, Climatic factors, Rocks, Sands, Clays.

34-902
Deuterium content of stream waters of glacier origin in Himalayas.
Wushiki, H., *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.40-42, Paper No.20. 4 refs.
Glacial rivers, Water pollution, Fallout, Seasonal variations, Meltwater, Climatic factors, Radioactive isotopes.

34-903
Effect of nocturnal precipitation on the mass balance of the Rikha Glacier, Hidden Valley, Nepal.
Higuchi, K., *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.43-49, Paper No.21. 6 refs.
Glacier mass balance, Precipitation (meteorology), Diurnal variations, Ablation, Mountain glaciers.

34-904
Deuterium content in the Himalayan precipitation at Khumbo District, observed in 1974/1975.
Wushiki, H., *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.50-56, Paper No.22. 6 refs.
Snowfall, Precipitation (meteorology), Fallout, Seasonal variations, Climatic factors, Radioactive isotopes, Mountains.

34-905
Altitude effect on the deuterium content of the local rains and snows in the Himalayas.
Wushiki, H., *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.57-59, Paper No.23. 4 refs.
Pollution, Fallout, Snowfall, Precipitation (meteorology), Elevation, Mountains.

34-906
Glaciations in the Khumbu Himal (1).
Fushimi, H., *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.60-67, Paper No.24. 11 refs.
Glacier oscillation, Glacier surges, Glaciation, Topographic factors, Climatic factors, Snow accumulation, Moraines, Erosion, Geomorphology.

34-907
Environmental chemistry and cycling processes.
Symposium on Environmental Chemistry and Cycling Processes, Augusta, Georgia, April 28-May 1, 1976, DOE symposium series, No.45, Washington, D.C., U.S. Department of Energy, Technical Information Center, 1978, 911p., CONF-760429, Refs. passim. For selected papers see 33-3845 and 34-908 through 34-912.
Adriano, D.C., ed, Brisbin, I.L., ed.
Tundra, Nutrient cycle, Ecosystems, Soil pollution, Human factors, Oil spills, Environments.

34-908
Problems of synthesis in mineral cycling studies: the tundra as an example.
Miller, P.C., Symposium on Environmental Chemistry and Cycling Processes, Augusta, Georgia, April 28-May 1, 1976. Proceedings. Edited by D.C. Adriano and I.L. Brisbin, Jr., DOE symposium series, No.45, Washington, D.C., U.S. Department of Energy, Technical Information Center, 1978, p.59-71, CONF-760429, 14 refs.
Tundra, Models.

34-909
Phosphorus dynamics of wet coastal tundra soils near Barrow, Alaska.
Barèl, D., et al, Symposium on Environmental Chemistry and Cycling Processes, Augusta, Georgia, April 28-May 1, 1976. Proceedings. Edited by D.C. Adriano and I.L. Brisbin, Jr., DOE symposium series, No.45, Washington, D.C., U.S. Department of Energy, Technical Information Center, 1978, p.516-536, CONF-760429, Refs. p.534-536.
Barsdate, R.J.
Tundra, Nutrient cycle, United States—Alaska—Barrow.

34-910
Impact of crude oil on root respiration and levels of soluble soil cellulase in coastal Arctic tundra.
Linkins, A.E., et al, Symposium on Environmental Chemistry and Cycling Processes, Augusta, Georgia, April 28-May 1, 1976. Proceedings. Edited by D.C. Adriano and I.L. Brisbin, Jr., DOE symposium series, No.45, Washington, D.C., U.S. Department of Energy, Technical Information Center, 1978, p.590-604, CONF-760429, Refs. p.602-604.
Antibus, R.K., Miller, O.K., Laursen, G.A.
Tundra, Oil spills, Roots, Environmental impact, Soil pollution.

34-911
Controls on decomposition and mineral release in wet meadow tundra—a simulation approach.
Barkley, S.A., et al, Symposium on Environmental Chemistry and Cycling Processes, Augusta, Georgia, April 28-May 1, 1976. Proceedings. Edited by D.C. Adriano and I.L. Brisbin, Jr., DOE symposium series, No.45, Washington, D.C., U.S. Department of Energy, Technical Information Center, 1978, p.754-778, CONF-760429, Refs. p.775-778.
Barèl, D., Stoner, W.A., Miller, P.C.
Minerals, Tundra, Nutrient cycle, Bacteria, Decomposition, Fungi, Thermal effects, Models.

34-912
Effect of Prudhoe crude oil on carbon assimilation by planktonic algae in an Arctic pond.
Miller, M.C., et al, Symposium on Environmental Chemistry and Cycling Processes, Augusta, Georgia, April 28-May 1, 1976. Proceedings. Edited by D.C. Adriano and I.L. Brisbin, Jr., DOE symposium series, No.45, Washington, D.C., U.S. Department of Energy, Technical Information Center, 1978, p.833-850, CONF-760429, 33 refs.
Hater, G.R., Vestal, J.R.
Oil spills, Ponds, Nutrient cycle, Biomass, Algae, Plankton.

34-913
Volumetric constitutive law for snow subjected to large strains and strain rates.
Brown, R.L., *U.S Army Cold Regions Research and Engineering Laboratory*, Aug. 1979, CR 79-20, 13p., ADA-075 474, 10 refs.
Snow deformation, Snow compression, Volume, Strains, Strain tests, Dynamic loads, Tracked vehicles.
A volumetric constitutive equation was developed to characterize the behavior of snow subjected to large compressive volumetric deformations. By treating the material as a suspension of air voids in a matrix material of polycrystalline ice, a rate-dependent volumetric constitutive law was formulated and found to accurately predict material response to pressure loads for a wide range of load rates. Comparison of the theory with shock wave data was not considered in this paper, although the constitutive law appears to be valid for such load situations. One application to oversnow mobility of tracked vehicles was made. In this case, power requirements due to snow compaction were calculated parametrically in terms of vehicle speed, track loading, and snow density.

34-914
Classification of fire effects on the microclimate of forest and tundra ecosystems—final report.
Rouse, W.R., et al, Environmental studies No.2, Ottawa, Canada, Department of Indian Affairs and Northern Development, 1976, 21p., 10 refs.
Mills, P.F.
Forest ecosystems, Tundra, Microclimatology, Fires.

34-915
Canadian oil industry's scientific activities in the Arctic offshore.
Pallister, A.E. 1977, 14p. + append., Numerous refs. Presented at the International Symposium on the Long Term Recovery Potential of Cold Water Marine Environments After Oil Spills, Halifax, Nova Scotia, 1977.
Oil spills, Sea ice.

34-916
Movement and deformation of landfast ice in the southern Beaufort Sea.
Cooper, P.F., Jr., *Canada. Beaufort Sea Project. Technical report*, Dec. 1975, No.37, 16p., 2 refs.
Sea ice, Fast ice, Drift, Strains.

34-917
Spring break-up observations at proposed polar gas pipeline crossing sites of Keewatin rivers.
Grey, B.J., Ottawa, Canada, Department of Indian Affairs and Northern Development, 1978, 22p., In English with French summary. 13 refs.
River crossings, Ice breakup, Gas pipelines.

34-918
Mt. Logan field report 1975.
Holdsworth, G., Canada, Department of the Environment, 1976, 21p., Unpublished report. 13 refs.
Ice cores, Ice composition, Ice deformation, Canada—Yukon Territory—Mt. Logan.

34-919
Workshop on the Bearing Capacity of Ice Covers, 16-17 October 1978, Winnipeg, Manitoba.
National Research Council, Canada. Associate Committee on Geotechnical Research. Snow and Ice Subcommittee, National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum no.123, May 1979, 253p., For individual papers see 34-920 through 34-935.
Meetings, Ice cover strength, Floating ice, Ice mechanics, Dynamic loads.

34-920
Field studies on the response of floating ice sheets to moving loads.
Beltaos, S., *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.1-13, 5 refs.
Floating ice, Dynamic loads, Ice cover thickness, Water depth.

34-921
Surface strain of artificially thickened ice drilling platforms.
Allan, A.J., *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.14-24, 7 refs.
Offshore drilling, Ice cover thickness, Artificial ice, Strains.

34-922
Results of strain measurements in floating ice platforms using 3 m-long resistance wire gauges.
Masterson, D.M., et al, *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.25-41, 10 refs.
Anderson, K.G., Strandberg, A.G.
Floating ice, Strain measuring instruments.

34-923
In situ determination of creep properties of ice covers by means of bore-hole creep and relaxation tests.
Ladanyi, B., et al, *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.44-64, 11 refs.
Barthelemy, E., Saint-Pierre, R.
Ice creep, Boreholes, Relaxation (mechanics), Rheology, Ice pressure.

34-924
Grain-size influence on effective modulus of ice.
Sinha, N.K., *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.65-79, 14 refs.
Ice creep, Viscoelasticity, Ice structure, Mathematical models.

34-925
Time-dependent deflection of an ice plate.
Michel, B., et al, *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.80-97, 7 refs.
Gagnon, L.
Floating ice, Ice creep, Models, Viscoelasticity.

34-926
Strength of ice plates.
Michel, B., *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.98-106, 3 refs.
Floating ice, Ice strength, Strain tests.

34-927
Laboratory investigation of circular sea-ice plates.
Murat, J.R., et al, *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.107-123, 18 refs.
Tinawi, R.
Floating ice, Dynamic loads, Ice strength, Laboratory techniques.

34-928
Empirical analysis of the creep of floating ice sheets.
Beltaos, S., et al, *National Research Council, Canada. Associate Committee on Geotechnical Research Technical memorandum,* May 1979, No.123, p.124-138, 8 refs.
Lipsett, A.W.
Floating ice, Ice creep, Time factor.

34-929
Problems related to the structural modelling of ice covers.
Tinawi, R., *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum,* May 1979, No.123, p.139-158, 28 refs.
Ice cover strength, Flexural strength, Dynamic loads, Analysis (mathematics).

34-930
Long-term loading analysis of floating ice platforms using finite element techniques.
Masterson, D.M., et al, *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum,* May 1979, No.123, p.159-182, 10 refs.
Strandberg, A.G.
Floating ice, Ice cover strength, Ice creep, Computer applications, Loads (forces).

34-931
Viscoelastic finite-element analysis of floating ice islands.
Swamidas, A.S.J., et al, *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum,* May 1979, No.123, p.183-204, 27 refs.
El-Tahan, H., Reddy, D.V.
Floating ice, Ice creep, Viscoelasticity, Variations, Analysis (mathematics).

34-932
Safe ice loads computed with a pocket calculator.
Nevel, D.E., *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum,* May 1979, No.123, MP 1249, p.205-223, 3 refs.
Ice strength, Loads (forces), Computers.
This report provides a program for calculating the deflection and stresses of a floating ice sheet using a pocket calculator. The program user must select appropriate values for the ice mechanical properties in order to compute reliable deflection and stresses. Engineering judgement must be used to select the allowable ice strength and when dealing with non-ideal situations.

34-933
Use of ice as an airstrip in the Thelon River valley by the Canadian Armed Forces.
McCutcheon, D.M., *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum,* May 1979, No.123, p.224-231.
Ice runways, Ice (construction material), Rivers, Aircraft landing areas, Dynamic loads, Military operation.

34-934
Use of ice as structural support in the construction of the Eagle River bridge.
McCutcheon, D.M., *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum,* May 1979, No.123, p.232-237.
Ice (construction material), Bridges.

34-935
Flooding of sea ice roads.
Favrat, D., et al, *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum,* May 1979, No.123, p.238-249, 4 refs.
Kry, P.R.
Roads, Ice (construction material), Artificial ice, Sea ice, Flooding.

34-936
Porosity and gas content of recent polar ice, applications to deep core analysis. [Porosité et teneur en gaz de la glace polaire récente; applications a l'étude des carottes prélevées en profondeur].
Lebel, B., *France. Centre national de la recherche scientifique. Laboratoire de glaciologie. Publication,* 1978, No.255, 80p., In French. Thesis. Univ. scientifique et médicale de Grenoble. Refs. p.77-80.
Ice density, Gas inclusions, Ice physics, Porosity, Antarctica—Law Dome, Antarctica—Dumont d'Urville Station.
Field studies were done at Camp Century and at a number of locations in the Antarctic to determine porosity and gas content of ice, as they vary with depth, pressure and temperature. Short-term variations only were investigated. The effect of geographic variations on porosity and gas inclusions was also studied. Short-term gas content changes are primarily due to the different porosities of the ice layers. Gas content variations with depth can shed light on thickness of layers in the polar caps, but the area of study must be carefully chosen. Best for this purpose are the sections between 1000 and 2000 m in the Antarctic, which reveal ice changes effected by climatic change.

34-937
Automatic apparatus for measuring low-level beta activity in snow samples. [Dispositif automatique de mesure de la radioactivité beta à bas-niveau d'échantillons de neige].
Pinglot, J.F., *France. Centre National de la Recherche Scientifique. Laboratoire de Glaciologie. Publication,* 1978, No.257, 103p., Doctoral thesis, Institut national politechnique de Grenoble. In French. Refs. p.101-103.
Recording instruments, Radioactivity, Snow accumulation, Snow impurities, Fallout.
This monograph concerns various low-level beta-radiation sources in snow as well as a number of methods used to determine emissions. Analysis of natural and artificial beta radiation in polar snow samples requires an automatic device to determine low levels. The laboratory being half underground and the antiradiation chamber made it possible to eliminate cosmic radiation. The device is described in detail, and results of studies on polar snow (annual accumulation, dating, levels of natural and fission-product radiation) are presented.

34-938
Arctic beach environment, south-west Devon Island, N.W.T.
Owens, E.H., Hamilton, Ontario, McMaster University, 1969, 152p., M.Sc. thesis. Bibliography p.146-152.
Beaches, Shoreline modification, Ocean waves, Sea ice, Fast ice, Tides, Ice push, Pressure ridges, Permafrost depth, Canada—Northwest Territories—Devon Island.

34-939
Temperature and the density dependences on hardness of artificially compacted snow.
Kobayashi, T., *Japan. National Research Center for Disaster Prevention. Report,* Nov. 1978, No.20, p.267-292, In Japanese with English summary and captions. 15 refs.
Snow compaction, Snow density, Snow temperature, Snow hardness.

34-940
Batura Glacier in the Karakoram Mountains and its variations.
Academia Sinica. Batura Glacier Investigation Group, *Scientia sinica,* Aug. 1979, 22(8), p.958-974, 15 refs.
Glacier ice, Glacier ablation, Glacier oscillation, Mapping, Ice forecasting.

34-941
Report of the International Ice Patrol services in the North Atlantic Ocean, season of 1977.
Knutson, K.N., et al, *U.S. Coast Guard. Report,* n.d., CG-188-32, 44p. + appends.
Neill, T.J.
Sea ice, Aerial surveys, Icebergs, Ice conditions.

34-942
Problems of offshore oil drilling in the Beaufort Sea.
Weller, G., et al, *Northern engineer,* Winter 1978, 10(4), MP 1250, p.4-11, 5 refs.
Weeks, W.F.
Ice structure, Offshore drilling, Floating ice, Grounded ice, Sea ice distribution, Subsea permafrost.

34-943
Monitoring of thickness changes of the continental ice sheets by satellite altimetry.
Brooks, R.L., *Journal of geophysical research,* July 30, 1979, 84(B8), p.3965-3968, 2 refs.
Ice sheets, Ice cover thickness, Altitude, Ice surface, Spacecraft.

34-944
Effect of varying low level wind fields on the opening and closing of the ice cover in the western Weddell Sea.
Kyle, T.H., Madison, University of Wisconsin, 1974, 91p., Master's thesis. 26 refs.
Sea ice, Ice forecasting, Wind (meteorology), Spacecraft, Ice conditions, Weddell Sea.
Three forms of meteorological analysis have been used for this study: meridional sea level pressure differences, low level wind directions, and cyclonic storm positions and trajectories. The results show a statistically highly significant relationship between the east-west widths of open water and all three of the meteorological parameters stated above. Average ice/wind factors of 0.6% and 1% are obtained and compare favorably with values obtained by previous investigators. High quality satellite data and extensive satellite coverage have improved trajectory forecasts for cyclones in the Southern Ocean. Forecasts of wind-induced ice cover variations may therefore possibly be made for Antarctic regions affected by these synoptic systems. However, there is evidence that factors such as freezing and restricted freedom of movement for ice floes can also be important. Therefore, an ice-open water forecast scheme should not be based on wind stress alone.

34-945
Some aspects of the ice topography of Trough Lake, southern Victoria Land, Antarctica.
Lyon, G.L., *New Zealand journal of geology and geophysics,* 1979, 22(2), p.281-284, 9 refs.
Lake ice, Floating ice, Ablation, Topography, Antarctica—Victoria Land.
Trough Lake has a permanent cover of floating ice. Contact of the ice with the Koettlitz Glacier produces pressure ridges which are modified by differential ablation. The estimated ablation rate of 300-450 mm of ice per year is higher than that at Lake Miers, 20 km north, due to the increased prevalence of katabatic winds at Trough Lake. (Auth.)

34-946
Soil formation in landscapes affected by industrial activities. [Pochvoobrazovanie v tekhnogennykh landshaftakh].
Trofimov, S.S., ed, Novosibirsk, Nauka, 1979, 294p., In Russian. For selected articles see 34-947 through 34-957. Refs. passim.
Human factors engineering, Landscape types, Aerial surveys, Mining.

34-947
Systems approach to studying soil formation processes in landscapes affected by industrial activities. [Sistemnyi podkhod k izucheniiu protsessov pochvoobrazovaniia v tekhnogennykh landshaftakh].
Trofimov, S.S., et al, Pochvoobrazovanie v tekhnogennykh landshaftakh (Soil formation in landscapes affected by industrial activities) edited by S.S. Trofimov, Novosibirsk, Nauka, 1979, p.3-19, In Russian. 28 refs.
Titlianova, A.A., Klevenskaia, I.L.
Mining, Landscape types, Environmental protection, Tailings, Soil formation, Human factors engineering, Systems analysis.

34-948
Parcellar structure of phytocenoses and the inhomogeneity of young soils in industrially disturbed landscapes. [Partselliarnaia struktura fitotsenoza i neodnorodnost' molodykh pochv tekhnogennykh landshaftov].
Taranov, S.A., et al, Pochvoobrazovanie v tekhnogennykh landshaftakh (Soil formation in landscapes affected by industrial activities) edited by S.S. Trofimov, Novosibirsk, Nauka, 1979, p.19-57, In Russian. 13 refs.
Forest soils, Mining, Rock excavation, Tailings.

34-949
Young soils formed in placer tailings in the southern taiga of the Central Urals. [O molodykh pochvakh, formiruiushchikhsia na otvalakh otrabotannykh rossypei v podzone iuzhnoi taigi Srednego Urala].
Nakariakov, A.V., et al, Pochvoobrazovanie v tekhnogennykh landshaftakh (Soil formation in landscapes affected by industrial activities) edited by S.S. Trofimov, Novosibirsk, Nauka, 1979, p.58-106, In Russian. 29 refs.
Trofikov, S.S.
Placer mining, Taiga, Tailings, Soil formation, Soil profiles.

34-950
Productivity of soils in meadow biogeocenoses of recultivated dredging areas in the Central Urals. [Osobennosti funktsionirovaniia bloka "pochva" v lugovykh biogeotsenozakh, rekul'tivirovannykh drazhnykh otvalov Srednego Urala].
Nakariakov, A.V., et al, Pochvoobrazovanie v tekhnogennykh landshaftakh (Soil formation in landscapes affected by industrial activities) edited by S.S. Trofimov, Novosibirsk, Nauka, 1979, p.106-123, In Russian. 23 refs.
Sidorova, A.A.
Human factors engineering, Mining, Dredging, Tailings, Soil formation, Revegetation, Meadow soils, Soil microbiology, Soil chemistry.

34-951
Initial soil formation processes developing on rock tailings of the Lipovskoe nickel mine. [Nachal'nye protsessy pochvoobrazovaniia na porodnykh otvalakh Lipovskogo mestorozhdeniia nikeliia].
Makhonina, G.I., Pochvoobrazovanie v tekhnogennykh landshaftakh (Soil formation in landscapes affected by industrial activities) edited by S.S. Trofimov, Novosibirsk, Nauka, 1979, p.123-140, In Russian. 15 refs.
Human factors engineering, Mining, Tailings, Soil formation, Taiga.

34-952
Natural revegetation of the Tom' River flood-plain soils disturbed by industrial activities. [Usloviia estestvennoi regeneratsii pochv v narushennykh promyshlennost'iu landshaftakh poimy verkhnego techeniia r. Tomi].
Taranov, S.A., et al, Pochvoobrazovanie v tekhnogennykh landshaftakh (Soil formation in landscapes affected by industrial activities) edited by S.S. Trofimov, Novosibirsk, Nauka, 1979, p.156-163, In Russian. 3 refs.
Fatkulin, F.A., Rodyniuk, I.S.
Mining, Revegetation, Tailings, Soil formation, Flood plains.

34-953
Early diagenesis and growth of wild and semi-cultivated plants on tailings of the Kuzbass coal mines. [Singenez i produktivnost' estestvennoi rastitel'nosti i polukul'tur fitotsenozov na otvalakh ugol'nykh razrezov Kuzbassa].
Kondrashin, E.R., Pochvoobrazovanie v tekhnogennykh landshaftakh (Soil formation in landscapes affected by industrial activities) edited by S.S. Trofimov, Novosibirsk, Nauka, 1979, p.163-172, In Russian. 11 refs.
Taiga.

34-954
Reforestation of coal mine tailings in the southern Kuzbass. [Lesovozobnovlenie na porodnykh otvalakh ugol'nykh razrezov IUzhnogo Kuzbassa].
Barannik, L.P., et al, Pochvoobrazovanie v tekhnogennykh landshaftakh (Soil formation in landscapes affected by industrial activities) edited by S.S. Trofimov, Novosibirsk, Nauka, 1979, p.172-179, In Russian. 4 refs.
Kandrashin, E.R.
Taiga.

34-955
Oxidizing activity of microorganisms in recultivated tailings of the Baydaevskiy coal mine (Kuzbass). [Mikroorganizmy rekul'tiviruemykh otvalov Baidaevskogo uglerazreza v Kuzbasse i ikh okislitel'naia aktivnost'].
Kulebakin, V.G., Pochvoobrazovanie v tekhnogennykh landshaftakh (Soil formation in landscapes affected by industrial activities) edited by S.S. Trofimov, Novosibirsk, Nauka, 1979, p.179-185, In Russian. 11 refs.
Mining, Coal, Tailings, Revegetation, Soil microbiology, Taiga.

34-956
Aerial reconnaissance of landscapes affected by industrial activities. [Vozmozhnosti primeneniia aerometodov pri analize tekhnogennykh landshaftov].
Solntseva, N.P., et al, Pochvoobrazovanie v tekhnogennykh landshaftakh (Soil formation in landscapes affected by industrial activities) edited by S.S. Trofimov, Novosibirsk, Nauka, 1979, p.258-278, In Russian. 6 refs.
Nikolaeva, L.P.
Human factors engineering, Aerial surveys, Landscape types, Photointerpretation, Mining, Tailings, Revegetation.

34-957
Usefulness of aerial photography in evaluating lands in the Lake Baykal area of the BAM zone. [Tselesoobraznost' primeneniia aerofotometodov dlia otsenki zemel'nykh resursov v pribaĭkal'skoĭ zone BAM].
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Taiga, Aerial surveys, Photointerpretation, Land development, Baykal Amur railroad.

34-958
Prognosis of rational use and protection of renewable natural resources in the Far North. [Prognoz izucheniia i okhrany vosproizvodimykh prirodnykh resursov Kraĭnego Severa].
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Tundra, Environmental protection, Taiga, Ecosystems, Biologic cycles.

34-959
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Upwelling, Oceanography, Pack ice, Ice edge.

34-960
Detection of ice at sea by radar.
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Sea ice distribution, Ice detection, Radar echoes, Ocean waves, Wind (meteorology), Sea clutter.

34-961
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Tunneling (excavation), Soil freezing, Artificial freezing, Frozen ground strength.

34-962
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Structures, Snow loads, Wind factors.

34-963
Anisotropic properties of sea ice in the 50- to 150-MHz range.
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Morey, R.M.
Sea ice, Radar echoes, Ice crystal structure, Ocean currents, Dielectric properties, Anisotropy.
Results of impulse radar studies of sea ice near Prudhoe Bay, Alaska, show that where there is a preferred current direction under the ice cover, the crystal structure of the ice becomes highly ordered. This includes a crystal structure with a preferred horizontal *c* axis that is oriented parallel with the local current. The radar studies show that this structure behaves as an anisotropic dielectric. The result is that when electromagnetic energy is radiated from a dipole antenna in which the *E* field is oriented perpendicular to the *c* axis azimuth, no bottom reflection is detected. It was also found that the frequency dispersion of anisotropic sea ice varies in the horizontal plane. This is demonstrated by the center frequency of the reflected signal spectrum, which is maximum in the preferred *c* axis direction and minimum perpendicular to it. In addition, it was found that the frequency dispersion is related to the average bulk brine volume of the ice but that the bulk dielectric constant of the ice, as determined from impulse travel time, shows little correlation with the coefficient of anisotropy.

34-964
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Canal, R.P.
Lake water, Waste disposal, Water treatment, Water chemistry.

34-965
Is there liquid water on Europa.
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Reynolds, R.T.
Extraterrestrial ice, Water, Atmospheric physics.

34-966
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Ice erosion, Tides, Shore erosion, Rocks, Cracking (fracturing).

34-967
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Alpine landscapes, Alpine tundra, Tundra, Charts, USSR—Zeya River.

34-968
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Parmuzin, IU.P., Moscow, Mysl', 1979, 295p., In Russian with English table of contents enclosed. Refs. p.287-294.
Forest tundra, Tundra.

34-969
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Taiga, Soil profiles, Soil formation.

34-970
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Forest ecosystems, Taiga.

34-971
Effect of maintenance felling on soil microflora in Pinus (cembra) sibirica forests. [Vliianie rubok ukhoda na mikrofloru pochv v kedrovnikakh].
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Ermolenko, L.G.
Taiga, Biomass.

34-972
Studying the effect of natural and experimental fires on forest soils. [Osobennosti izucheniia vliianiia ognia na pochvu v usloviiakh polevykh opytov i estestvennykh pozharov].
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Forest fires, Soil water, Taiga, Surface temperature.

34-973
Model experiments for determining the role of pine in the formation of variegated forest soils. [Model'nye opyty po vyiavleniiu roli sosny v formirovanii pochvennoi pestroty v lesu].
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Taiga, Soil formation.

34-974
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Korsunova, T.M.
Taiga, Soil formation.

34-975
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Gorbachev, V.N.
Taiga, Soil chemistry.

34-976
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Taiga, Soil water migration, Soil chemistry.

34-977
Studying the migration of chlorine-marked soil moisture. [Izuchenie zakonomernosteĭ peredvizheniia vlagi metodom "mecheniia" ionom khlora].
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IAshikhin, G.I.
Forest soils, Soil profiles, Frost penetration, Soil water migration. Markers.

34-978
Modeling the processes reflecting the influence of trees on forest soils. [Modelirovanie protsessov vliianiia osnovnykh drevesnykh porod na pochvu].
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Forest soils, Soil formation, Taiga, Biomass, Soil water, Soil chemistry, Models.

34-979
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IAromko, V.N., et al, *Soil mechanics and foundation engineering*, Jan.-Feb. 1979 (Pub. July 1979), 16(1), p.17-22, Translated from Osnovaniia, fundamenty i mekhanika gruntov. 7 refs.
Ses'kov, V.E.
Swamps, Peat, Bearing strength, Dynamic loads, Elastic properties.

34-980
Quantitative analysis of the relation between the main thermophysical characteristics of frozen soils.
Konovalov, A.A., *Soil mechanics and foundation engineering*, Jan.-Feb. 1979 (Pub. July 1979), 16(1), p.23-37, Translated from Osnovaniia, fundamenty i mekhanika gruntov. 8 refs.
Soil freezing, Frozen ground, Ground thawing, Physical properties, Thermal analysis, Soil water, Unfrozen water content, Phase transformations.

34-981
Investigation of the bearing capacity of piles driven into plastic frozen soil.
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Mironov, V.A.
Concrete piles, Reinforced concretes, Frozen fines, Pile driving, Construction equipment, Bearing strength, Permafrost.

34-982
Regularities of the deformation of swelling soils with time.
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Malakian, R.P.
Clay soils, Density (mass/volume), Flooding, Saturation, Stresses, Deformation, Rheology, Analysis (mathematics).

34-983
Installation for the measurement of the shear stress of solids at low temperatures and high pressures.
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Makarova, Z.G., Shakhovskoi, G.P., Zhulin, V.M.
Solids, Compressive properties, Shear strength, Test equipment, Low temperature tests, High pressure tests.

34-984
Gallium-Arsenide diode temperature sensors.
Ivanov, L.P., et al. *Instruments and experimental techniques*, Jan.-Feb. 1979 (Pub. Aug. 1979, 1(2), p.273-275, Translated from Pribory i tekhnika eksperimenta. 2 refs.
Korenman, M.E., Lakhtikova, V.G., Prikhod'ko, G.L.
Temperature measurement.

34-985
Resistance of steels to abrasion under different wear conditions. [Abrazivnaia iznosostoĭkost' staleĭ pri raznykh skhemakh iznashivaniia].
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Steels, Earthwork, Permafrost.

34-986
Effect of surface-active media on low temperature abrasive wear of metals. [O vliianii poverkhnostno-aktivnoĭ sredy na nizkotemperaturnoe abrazivnoe iznashivanie metallov].
Dorodnyĭ, V.I., *Stroitel'stvo v raĭonakh Vostochnoĭ Sibiri i Kraĭnego Severa*, 1977, Vol.42, p.26-31, In Russian. 12 refs.
Steels, Abrasion, Surfactants, Low temperature tests.

34-987
Types of core-barrel cutting heads and their interaction with ground. [Tipy nakonechnikov trubchatykh burov i ikh vzaimodeĭstvie s gruntom].
Krupina, G.K., *Stroitel'stvo v raĭonakh Vostochnoĭ Sibiri i Kraĭnego Severa*, 1977, Vol.42, p.67-80, In Russian. 10 refs.
Coring, Drills, Core samplers, Permafrost.

34-988
Determining the resistance of ground to cutting tools. [Opredelenie sily soprotivleniia grunta rezaniiu stupenchatym nozhom].
Pul'kis, N.D., *Stroitel'stvo v raĭonakh Vostochnoĭ Sibiri i Kraĭnego Severa*, 1977, Vol.42, p.81-85, In Russian. 4 refs.
Earthwork, Permafrost.

34-989
Excavators with thermo-mechanical cutting tools. [Mashina s termomekhanicheskim rabochim organom].
Zhelukevich, R.B., *Stroitel'stvo v raĭonakh Vostochnoĭ Sibiri i Kraĭnego Severa*, 1977, Vol.42, p.86-90, In Russian.
Earthwork, Permafrost, Gravel.

34-990
Driving assembly KN-3-16 for vertical and inclined piles. [Koprovyĭ agregat KN-3-16 dlia zabivki vertikal'nykh i naklonnykh svaĭ].
Khaĭbullaev, K.A., *Stroitel'stvo v raĭonakh Vostochnoĭ Sibiri i Kraĭnego Severa*, 1977, Vol.42, p.91-94, In Russian. 3 refs.
Foundations, Pile driving, Permafrost.

34-991
Scraper and bulldozer equipment mounted on D-9Zh and DET-250 tractors used in the North. [Ispol'zovanie rykhlitelei i bul'dozerov na traktorakh D-9Zh i DET-250 na Severe].
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Shmulevich, N.M.
Earthwork, Permafrost.

34-992
Methods of calculating helicopter equipment for construction and installation work. [O metodike proektirovaniia osnastki vertoletov dlia stroitel'no-montazhnykh rabot].
Bogdanov, V.A., *Stroitel'stvo v raĭonakh Vostochnoĭ Sibiri i Kraĭnego Severa*, 1977, Vol.42, p.101-111, In Russian. 2 refs.
Transportation, Helicopters, Construction equipment.

34-993
Construction of situ-cast bored piles in Krasnoyarsk. [Osobennosti tekhnologii ustroĭstva buronabivnykh svaĭ v Krasnoiarske].
Barmin, N.I., et al, *Stroitel'stvo v raĭonakh Vostochnoĭ Sibiri i Kraĭnego Severa*, 1977, Vol.42, p.126-131, In Russian.
Khrebtov, N.V., Chernov, V.K.
Foundations, Piles, Permafrost beneath structures.

34-994
Selecting modular structures for northern construction sites. [Metodika otbora inventarnykh sooruzheniĭ dlia ispol'zovaniia na stroitel'nykh ploshchadkakh v raĭonakh Severa].
Koposhko, V.S., *Stroitel'stvo v raĭonakh Vostochnoĭ Sibiri i Kraĭnego Severa*, 1977, Vol.42, p.138-140, In Russian.
Modular construction, Prefabrication, Pavements, Roads, Buildings, Storage, Enclosures, Permafrost beneath structures.

34-995
Hydrogeological problems of the Baykal Amur railroad. [Gidrogeologicheskie problemy BAMa].
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Pisarskiĭ, B.I.
Water supply, Permafrost hydrology, Snow water equivalent, Naleds, Taliks, Thermokarst, Permafrost beneath rivers, Baykal Amur railroad.

34-996
Hydrogeochemical investigations of the BAM zone. [Gidrogeokhimicheskie issledovaniia zony BAMa].
Lomonosov, I.S., *Akademiia nauk SSSR. Vestnik*, 1977, No.6, p.87-94, In Russian.
Permafrost beneath structures, Naleds, Permafrost hydrology, Water supply, Water chemistry, Ground ice, Ice composition, Suprapermafrost ground water, Baykal Amur railroad.

34-997
Ice in the lunar polar regions.
Arnold, J.R., *Journal of geophysical research*, Sep. 10, 1979, 84(B10), p.5659-5668, 52 refs.
Extraterrestrial ice, Moon.

34-998
Theory and experiment for passive microwave remote sensing of snowpacks.
Kong, J.A., et al, *Journal of geophysical research*, Sep 10, 1979, 84(B10), p.5669-5673, 7 refs
Shin, R., Shiue, J.C., Tsang, L.
Remote sensing, Snow, Microwaves, Radiometry.

34-999
Ice sheet internal radio-echo reflections and associated physical property changes with depth.
Ackley, S.F., et al, *Journal of geophysical research*, Sep. 10, 1979, 84(B10), MP 1319, p.5675-5680, 13 refs.
Keliher, T.E.
Ice sheets, Ice cores, Radio echo soundings, Ice physics, Antarctica—Folger, Cape.
In this paper, the measured physical properties of core to bedrock taken at Cape Folger, East Antarctica, are used to compute a depth-reflection coefficient profile for comparison with the observed radio-echo reflections. The measurements available on physical properties are density variations, bubble size and shape changes, and crystal fabric variations. In calculations to differentiate the effects of the physical properties, it appears that density variations account for the primary contributions to the calculated dielectric property changes corresponding to the highest observed reflection coefficients. However, bubble changes alone can also account for reasonable, though lower, reflection coefficients at the depths corresponding to observed reflections. Crystal fabric variations correspond poorly with the reflection locations. The close correspondence between the depths of the bubble shape changes (which are definitely deformational features) and the depths of the density variations, and between both of these and the radio-echo layers, indicates that deformational events in the ice sheet's history are represented by the variations in physical properties and associated radio-echo records. (Auth. mod.)

34-1000
Continuous record of artificial tritium fallout at the South Pole (1954-1978).
Jouzel, J., et al, *Earth and planetary science letters*, Oct. 1979, 45(1), p.188-200, 25 refs.
Merlivat, L., Pourchet, M., Lorius, C.
Snow composition, Fallout, Isotope analysis, Particles, Antarctica—South Pole.
Snow samples were taken from a 5-m-deep pit located near the South Pole station in Jan. 1975, and continuous deuterium, tritium and beta activity profiles have been obtained from them. The first artificial tritium, due to the 1952 Ivy experiments, was detected during 1954. A two-year delay between explosions and fallout suggests that the tritium fallout is related to the main nuclear tests from 1952 to 1960. A stratospheric half residence time equal to 20 months is deduced from the fallout decrease occurring after the 1966 peak. For the French southern hemisphere experiments, it is about one year. A sharp tritium decrease is observed after a high 1973 peak, providing a new tritium reference level for future glaciological studies in Antarctica. The beta and tritium peaks occur respectively during the antarctic summer and the antarctic winter, showing different injection mechanisms. This winter input and the high tritium values registered at the South Pole indicate a preferential tritium transfer over the pole area. Two mechanisms, stratospheric-tropospheric exchange and direct stratospheric cloud precipitation, could account for this injection. (Auth. mod.)

34-1001
Proceedings of a Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. MP 1257, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, 432p., For individual papers see 34-1002 through 34-1040. Numerous refs.
Ray, M., ed.
Meetings, Snow cover, Runoff, Models.

34-1002
Snow accumulation and distribution.
Gray, D.L., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.3-33, Bibliography p.29-33.
Snow accumulation, Snow cover distribution, Snow physics, Meteorological factors, Topographic effects, Measurement.

34-1003
Comparability of snowfall and snow cover data in a southern Ontario basin.
Goodison, B.E., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.34-43, 16 refs.
Snowfall, Snow surveys, Measurement, Topographic effects.

34-1004
Value of snow course data in forecasting snowmelt runoff.
Lettenmaier, D.P., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.44-55, 4 refs.
Snow courses, Snowmelt, Runoff forecasting.

34-1005
Snow on the Great Plains.
Willis, W.O., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.56-62, 34 refs.
Snowfall, Water supply, Wind factors.

34-1006
Role of elevation in determining spatial distributions of precipitation, snow, and water input at Mt. Mansfield, Vermont.
Hendrick, R.L., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.63-70, 8 refs.
DeAngelis, R.J., Dingman, S.L.
Precipitation (meteorology), Snow cover distribution, Altitude.

34-1007
Square grid system for modeling snow cover in small watersheds.
Dickison, R.B.B., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.71-76, 6 refs.
Daugharty, D.A.
Snow cover distribution, Models, Snow depth, Snow water equivalent.

34-1008
LANDSAT sensing of glaciers with application to mass-balance and runoff.
Breslau, D., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.77-82, 6 refs.
Bussom, D.E.
Glacier mass balance, Runoff, LANDSAT, Remote sensing.

34-1009
Snow accumulation and roughness changes through the winter at a forest-tundra site near Schefferville, Quebec.
Granberg, H.B., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.83-92, 21 refs.
Snow accumulation, Surface roughness, Forest tundra, Seasonal variations.

34-1010
Variation of snow properties with elevation in New Hampshire and Vermont.
Dingman, S.L., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.93-100, 8 refs.
Henry, E.C., Hendrick, R.L.
Snow water equivalent, Snow depth, Snow density, Altitude, Variations.

34-1011
Energy mass fluxes at the snow surface in a prairie environment.
Male, D.H., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.101-124, 60 refs.
Granger, R.J.
Mass transfer, Solar radiation, Albedo, Snowmelt, Heat transfer, Plains.

34-1012
Energy budget of a snow cover.
McKay, D.C., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.125-134, 21 refs.
Heat transfer, Heat balance, Snow physics, Radiation.

34-1013
Ablation of an isolated snowdrift.
Zuzel, J.F., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.135-143, 5 refs.
Cox, L.M.
Snowdrifts, Ablation, Models.

34-1014
Solar radiation model for a snow surface in mountainous terrain.
Dozier, J., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, p.144-153, 32 refs.
Snowmelt, Models, Solar radiation, Heat transfer, Snow air interface.

34-1015
Interactions between the atmospheric boundary layer and a snow surface.
Halberstam, I.M., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.154-166, 13 refs.
Schieldge, J.P.
Heat transfer, Turbulent exchange, Snow air interface, Turbulent boundary layer, Moisture, Meteorological data, Boundary value problems, Models.

34-1016
Atmospheric radiation model for general alpine application.
Marks, D., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.167-178, 16 refs.
Solar radiation, Remote sensing, Radiometry, Snowmelt, Models.

34-1017
Review of snow melt in the mountain environment.
Obled, C., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.179-204, 58 refs.
Harder, H.
Mountains, Snow melting, Runoff, Models.

34-1018
Optimal complexity of a point snowmelt model.
Kuusisto, E., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.205-210, 1 ref.
Snowmelt, Models.

34-1019
Energy balance and snowmelt in a deciduous forest.
Hendrie, L.K., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.211-221, 27 refs.
Price, A.G.
Heat balance, Snowmelt, Forest land, Meteorological data, Models.

34-1020
Review of water movement in snow.
Wankiewicz, A., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.222-252a, 73 refs.
Snow permeability, Water flow, Snowmelt, Runoff, Models, Snow water content.

34-1021
Some experimental data on water percolation through homogeneous snow.
Denoth, A., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.253-256, In English with French summary. 6 refs.
Seidenbusch, W., Blumthaler, M., Kirchlechner, P.
Snow permeability, Water flow, Snow water content.

34-1022
Controls on the production of snowmelt runoff.
Price, A.G., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.257-268, 48 refs.
Hendrie, L.K., Dunne, T.
Snowmelt, Runoff forecasting, Models, Water flow.

34-1023
European hydrological system snow routine.
Morris, E.M., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.269-278, 10 refs.
Godfrey, J.
Snowmelt, Runoff, Snow temperature, Water flow, Models, Heat transfer, Boundary value problems.

34-1024
Measured thermal regime within a snow cover just before the onset of melt.
Granberg, H.B., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.279-287, 9 refs.
Snow temperature, Snow melting.

34-1025
Study of snowmelt-runoff components using isotope measurements.
Herrmann, A., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.288-296, 12 refs.
Martinec, J., Stichler, W.
Snowmelt, Runoff, Isotope analysis.

34-1026
Review of snow-soil interaction.
Guymon, G.L., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.297-303, 39 refs.
Boundary value problems, Soil temperature, Soil water migration, Snow water content, Frozen ground.

34-1027
Analysis of coupled heat and moisture flow in an unsaturated soil.
O'Neill, K., MP 1259, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.304-309, 25 refs.
Soil water migration, Heat transfer.
This paper presents a set of partial differential equations that describes the concurrent one-dimensional flow of liquid and heat in unfrozen unsaturated soils. A Galerkin finite element method based on hermite polynomials was used to solve the equations numerically. To verify both the theory and the solution method, laboratory measurements were made on a horizontal soil column. The results furnished essential transport coefficient values, as well as data records over space and time for infiltrations of cold water that produced steep, interacting temperature and moisture content gradients. Comparison of measured and predicted values showed very good agreement in both the moisture and temperature domains. Contrary to the usual assumption in soil studies, liquid convection played a large role in the heat transfer. A simple geometric mean formula represented the soil thermal conductivity quite adequately.

34-1028
Snow soil interactions in interior Alaska.
Santeford, H.S., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.311-318, 3 refs.
Snow surveys, Mosses, Water flow, Vapor barriers.

34-1029
Is the soil frozen or not—an algorithm using weather records.
Cary, J.W., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.319-327, 13 refs.
Campbell, G.S., Papendick, R.I.
Ground ice, Frozen ground physics, Heat transfer, Meteorological data.

34-1030
Upward migration of moisture and heaving in frozen soils.
Morel-Seytoux, H.J., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.328-335, 23 refs.
Soil water migration, Frost heave, Ice formation, Layers, Models.

34-1031
Streamflow simulation models for use on snow covered watersheds.
Anderson, E.A., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.336-350, 37 refs.
Stream flow, Models, Snow water equivalent.

34-1032
Procedure to incorporate snow course data into the National Weather Service river forecast system.
Carroll, T.R., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.351-358, 6 refs.
Snow surveys, Snow water equivalent, River flow, Forecasting, Models.

34-1033
Interactive model of snowpack accumulation and melt dynamics in forested conditions.
Ffolliott, P.F., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.359-368, 11 refs.
Rasmussen, W.O.
Snow accumulation, Snow melting, Forests, Models.

34-1034
Development of the operational snow band SSARR model.
Speers, D., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.369-378, 6 refs.
Kuehl, D., Schermerhorn, V.
Snow accumulation, Ablation, Rain, Runoff, Models.

34-1035
Mountain watershed simulation model.
Leavesley, G.H., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.379-386, 12 refs.
Striffler, W.D.
Snow hydrology, Models, Stream flow, Solar radiation, Air temperature, Precipitation (meteorology).

34-1036
Review of the operational experience with the SSARR model.
Rockwood, D.M., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.387-396, 7 refs.
Hydrology, Models, Snowfall, Rain, Reservoirs.

34-1037
Spring flood forecasting by conceptual models in Sweden.
Bergström, S., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.397-405, 2 refs.
Flood forecasting, Models, Sweden.

34-1038
Use of integrated hydrological models with distributed snow cover description for hydrological forecasting in Norway.
Saelthun, N.R., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.406-413, 9 refs.
Hydrology, Forecasting, Models, Snow cover distribution.

34-1039
Model to predict short-term snowmelt runoff using synoptic observations of streamflow, temperature and precipitation.
Tangborn, W.V., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.414-426, 8 refs.
Snowmelt, Runoff, Forecasting, Models.

34-1040
Applications of the SCS basin simulation model.
Woodward, D.E., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.427-432, 5 refs.
Walker, C.H.
Hydrology, Water balance, Models, Water flow, Reservoirs.

34-1041
Laser reflectivity measurements of snow/ice covered targets in the Arctic region.
Schneider, R.W., *U.S. Arsenal, Redstone, Alabama. Redstone Arsenal technical report*, Mar. 1979, DRDMI-T-75-45, 40p., ADB-040 487L, Distribution limited to U.S. Government agencies only.
Snow cover, Ice cover, Reflectivity, Lasers.

34-1042
Ice seal for rotating shafts.
Harbage, A.B., Jr., *U.S. Naval Ship Research and Development Center. Report*, Oct. 1979, DTNSRDC-79/085, 35p. ADA-076 308.
Sealing, Ice (construction material), Ice formation, Shafts (machine elements).

34-1043
Phosphonitrilic fluoroelastomer coated fabrics for collapsible fuel storage tanks.
Sicka, R.W., et al, Akron, Ohio, Firestone Tire and Rubber Co., 1979, 172p. ADA-074 824.
Mitchell, G.B.
Polymers, Protective coatings, Storage tanks, Fuels, Low temperature tests.

34-1044
Arctic lead-airdrop data buoy.
Buck, B.M., et al, *Polar Research Laboratory, Inc., Santa Barbara. Technical report*, July 1979, PRL-TR-8, 22p. ADA-074 731.
Burke, S.P., Anderson, J.O.
Remote sensing, Subglacial observations, Sea ice, Polynyas, Airborne equipment.

34-1045
Portable data collection winch without slip rings for Arctic use.
Richards, D., *Exposure: a newsletter for ocean technologists*, July 1979, 7(3), p.1-3. ADA-073 329.
Portable equipment, Oceanography.

34-1046
Basis for forecasting the Arctic sea ice over a few months to many years.
Lamb, H.H., *East Anglia. University (Norwich, England). Climatic Research Unit. Annual report*, Jan. 1979, No.1, 84p. ADA-074 720.
Long range forecasting, Ice forecasting, Atmospheric pressure, Ocean currents, Sea ice.

34-1047
Winter and spring oceanographic conditions in and under the ice of the Bering Sea.
Lohrman, W.R., et al, Monterey, California, U.S. Navy Postgraduate School, 1979, 66p., ADA-073 582, M.Sc. thesis.
Paquette, R.G., Bourke, R.H.
Water temperature, Water structure, Salinity, Sea ice, Seasonal variations.

34-1048
Study of ambient noise levels in the marginal-sea-ice zone east of Greenland.
Peters, K.W., Monterey, California, U.S. Naval Postgraduate School, 1979, 162p., M.Sc. thesis.
Sea ice, Ice acoustics, Floating ice, Noise (sound).

34-1049
Proceedings of the 47th annual meeting.
Western Snow Conference, Ft. Collins, Colorado State University, 1979, 118p., For selected individual papers see 34-1050 through 34-1057.
Meetings, Snow hydrology, Stream flow, Runoff forecasting, Measurement.

34-1050
Hydrochemical separation of components of discharge in alpine catchments.
Collins, D.N., et al, *Western Snow Conference. Proceedings*, Apr. 1979, 47th, p.1-9, 23 refs.
Young, G.J.
Snowmelt, Water chemistry, Electrical resistivity.

34-1051
Snow blowing and snow fall on the North Slope, Alaska.
Wendler, G., *Western Snow Conference. Proceedings*, Apr. 1979, 47th, p.10-19, 15 refs.
Snowfall, Blowing snow, Wind (meteorology), Climatology.

34-1052
Microwave measurements of snow stratigraphy and water equivalence.
Boyne, H.S., et al, *Western Snow Conference. Proceedings*, Apr. 1979, 47th, p.20-26, 2 refs.
Ellerbruch, D.A.
Snow stratigraphy, Snow water equivalent, Electromagnetic prospecting, Snow depth, Dielectric properties.

34-1053
Application of meteor burst telemetry to snow hydrology.
Burroughs, H.F., et al, *Western Snow Conference. Proceedings*, Apr. 1979, 47th, p.27-37, 3 refs.
Patterson, P.E.
Snow hydrology, Telemetering equipment, Data transmission.

34-1054
Volume forecasts using the SSARR model in a zone mode.
Kuehl, D.W., *Western Snow Conference. Proceedings*, Apr. 1979, 47th, p.38-47, 24 refs.
Runoff forecasting, Snow accumulation, Ablation, Models, Snow courses, Air temperature, Precipitation (meteorology).

34-1055
Evaluation of streamflow forecasting methods.
Lettenmaier, D.P., et al, *Western Snow Conference. Proceedings*, Apr. 1979, 47th, p.48-55, 5 refs.
Garen, D.C.
Stream flow, Runoff forecasting, Models, Performance.

34-1056
Application of snow covered area to runoff forecasting in the southern Sierra Nevada.
Hannaford, J.F., et al, *Western Snow Conference. Proceedings*, Apr. 1979, 47th, p.56-67, 10 refs.
Hall, R.L., Brown, A.J.
Runoff forecasting, Snowmelt, Snow cover distribution.

34-1057
Mean and extereme semi-monthly northwestern hemispheric snow boundaries from satellite records (1966-1979) and some surface data comparisons.
Berry, M.O., et al, *Western Snow Conference. Proceedings*, Apr. 1979, 47th, p.68-79, 4 refs.
Scholefield, P.R.
Snow cover distribution, Spaceborne photography, Climatology.

34-1058
Soils and the productivity of plant communities. Vol.4. [Pochvy i produktivnost' rastitel'nykh soobshchestv. Vyp.4],
Kovda, V.A., ed, Moscow, Universitet, 1979, 205p., In Russian. For selected papers see 34-1059 through 34-1066. Refs. passim.
Tundra, Patterned ground.

34-1059
Structure of moss synusiae in the spotty tundra of the Agapa research station. [Struktura mokhovoi sinuzii piatnistoi tundry statsionara Agapa],
Tishkov, A.A., Pochvy i produktivnost' rastitel'nykh soobshchestv. Vyp.4 (Soils and the productivity of plant communities. Vol.4) edited by V.A. Kovda, Moscow, Universitet, 1979, p.5-14, In Russian. 14 refs.
Tundra, Patterned ground.

34-1060
Fall off and litter of coniferous forests in Valday. [Opad i podstilka khvoïnykh lesov Valdaia],
Grishina, L.A., et al, Pochvy i produktivnost' rastitel'nykh soobshchestv. Vyp.4 (Soils and the productivity of plant communities. Vol.4) edited by V.A. Kovda, Moscow, Universitet, 1979, p.15-50, In Russian. 13 refs.
Vladychenskiĭ, A.S.
Forestry, Forest soils, Litter, Soil formation, Podsol, Soil profiles, Soil chemistry, Landscape types, Vegetation, Biomass.

34-1061
Fractional composition of humic acids in Valday pine forest soils. [Fraktsionnyĭ sostav gumusovykh kislot pochv khvoïnykh lesov Valdaia],
Grishina, L.A., et al, Pochvy i produktivnost' rastitel'nykh soobshchestv. Vyp.4 (Soils and the productivity of plant communities. Vol.4) edited by V.A. Kovda, Moscow, Universitet, 1979, p.51-62, In Russian. 27 refs.
Vladychenskiĭ, A.S.
Forest soils, Litter, Soil formation, Podsol, Soil chemistry, Soil profiles, Landscape types.

34-1062
Properties of humic acids in the Valday research station soils. [Nekotorye svoïstva gumusovykh kislot pochv Valdaïskogo statsionara],
Grishina, L.A., et al, Pochvy i produktivnost' rastitel'nykh soobshchestv. Vyp.4 (Soils and the productivity of plant communities. Vol.4) edited by V.A. Kovda, Moscow, Universitet, 1979, p.63-87, In Russian. 17 refs.
Borodaenko, N.N.
Forest soils, Litter, Biomass, Soil formation, Soil composition, Soil profiles.

34-1063
Microelements in the lower layer of Valday station spruce forest. [Mikroelementy v rasteniiakh nizhnego iarusa el'nika-kislichnika Valdaïskogo statsionara],
Belitsyna, G.D., et al, Pochvy i produktivnost' rastitel'nykh soobshchestv. Vyp.4 (Soils and the productivity of plant communities. Vol.4) edited by V.A. Kovda, Moscow, Universitet, 1979, p.87-92, In Russian. 5 refs.
Epishina, L.V.
Forest soils, Biomass, Litter, Vegetation, Peat, Soil formation, Podsol, Soil chemistry.

34-1064
Microorganism dynamics in spruce forest soils. [Dinamika aktivnykh form mikroorganizmov v pochve el'nika-kislichnika],
Skvortsova, I.N., Pochvy i produktivnost' rastitel'nykh soobshchestv. Vyp.4 (Soils and the productivity of plant communities. Vol.4) edited by V.A. Kovda, Moscow, Universitet, 1979, p.93-99, In Russian. 7 refs.
Forest soils, Vegetation, Litter, Soil chemistry, Soil microbiology, Soil composition, Snow cover effect.

34-1065
Maganese oxidizing bacteria in the Valday station soils. [Marganetsokisliaiushchie mikroorganizmy v pochvakh Valdaïskogo statsionara],
Bolotina, I.N., Pochvy i produktivnost' rastitel'nykh soobshchestv. Vyp.4 (Soils and the productivity of plant communities. Vol.4) edited by V.A. Kovda, Moscow, Universitet, 1979, p.100-107, In Russian. 17 refs.
Forest soils, Podsol, Vegetation, Litter, Soil microbiology, Soil chemistry.

34-1066
List of publications based on materials from the Agapa Taymyr research station. [Spisok publikatsiĭ po materialam sobrannym na Taïmyrskom statsionare "Agapa"], Pochvy i produktivnost' rastitel'nykh soobshchestv. Vyp.4 (Soils and the productivity of plant communities. Vol.4) edited by V.A. Kovda, Moscow, Universitet, 1979, p.203-206, In Russian. 61 refs.
Tundra, Research projects, Bibliographies, USSR—Taymyr Peninsula.

34-1067
History of river valley development and land reclamation problems in Siberia and the Far East. [Istoriia razvitiia rechnykh dolin i problemy melioratsii zemel'. Sibir' i Dal'nyĭ Vostok],
Florensov, N.A., ed, Novosibirsk, Nauka, 1979, 215p., In Russian. For selected papers see 34-1068 through 34-1075. Refs. passim.
Nikolaev, V.A., ed.
River basins, Valleys, Saline soils, Swamps, Drainage, Land reclamation, Irrigation, Engineering geology, Spaceborne photography, Aerial surveys, Photointerpretation, Landscape types, Alpine tundra, Forest tundra, Taiga.

34-1068
History of river valley development as a basis for designing land irrigation with ground water in Buryat-Mongol ASSR. [Istoriia razvitiia rechnykh dolin Buriatii kak osnova dlia prognoza irrigatsii zemel' podzemnymi vodami],
Bazarov, D.B., et al, Istoriia razvitiia rechnykh dolin i problemy melioratsii zemel'. Sibir' i Dal'niĭ Vostok (History of river valley development and land reclamation problems in Siberia and the Far East) edited by N.A. Florensov and V.A. Nikolaev, Novosibirsk, Nauka, 1979, p.62-66, In Russian. 3 refs.
Borisenko, I.M., Tulokhonov, A.K.
River basins, Valleys, Saline soils, Swamps, Land reclamation, Irrigation, Discontinuous permafrost.

34-1069
Recent tectonics and river valleys in the Ilim, Ust'-Kutsk and Katanga areas in relation to land reclamation problems. [Noveĭshaia tektonika i rechnye doliny v Ilimskom, Ust'-Kutskom i Katangskom raïonakh v sviazi s problemoĭ melioratsii],
Zveder, L.N., Istoriia razvitiia rechnykh dolin i problemy melioratsii zemel'. Sibir' i Dal'niĭ Vostok (History of river valley development and land reclamation problems in Siberia and the Far East) edited by N.A. Florensov and V.A. Nikolaev, Novosibirsk, Nauka, 1979, p.71-75, In Russian.
River basins, Valleys, Geologic structures, Quaternary deposits, Swamps, Land reclamation, Engineering geology, Economic development.

34-1070
Antecedent and recent stream pattern of the Amur-Zeya Plain from spaceborne photography. [Formirovanie prarek i sovremennoĭ rechnoĭ seti Amuro-Zeĭskoĭ ravniny po dannym deshifrirovaniia kosmicheskikh snimkov],
Muzis, A.I., Istoriia razvitiia rechnykh dolin i problemy melioratsii zemel'. Sibir' i Dal'niĭ Vostok (History of river valley development and land reclamation problems in Siberia and the Far East) edited by N.A. Florensov and V.A. Nikolaev, Novosibirsk, Nauka, 1979, p.75-80, In Russian. 10 refs.
Electric power, Spaceborne photography, Engineering geology, Baykal Amur railroad, Permafrost beneath structures, USSR—Zeya River.

34-1071
Modeling lake landscapes of the Selenga River delta, its dynamics and development. [Modelirovanie prirody ozernogo kraia Selenginskoĭ del'ty, ee dinamika i prognoz razvitiia],
Bogoiavlenskiĭ, B.A., Istoriia razvitiia rechnykh dolin i problemy melioratsii zemel'. Sibir' i Dal'niĭ Vostok (History of river valley development and land reclamation problems in Siberia and the Far East) edited by N.A. Florensov and V.A. Nikolaev, Novosibirsk, Nauka, 1979, p.105-128, In Russian. 29 refs.
Deltas, Models, Land reclamation, Aerial surveys, Photography, Geobotanical interpretation, Landscape types, Water pollution, USSR—Baykal Lake, USSR—Selenga River.

34-1072
Revealing stream pattern indices by spaceborne photography. [Ispol'zovanie kosmicheskikh televizionnykh snimkov dlia vyiavleniia indikatsionnykh osobennosteĭ gidroseti],
Miliaeva, L.S., Istoriia razvitiia rechnykh dolin i problemy melioratsii zemel'. Sibir' i Dal'niĭ Vostok (History of river valley development and land reclamation problems in Siberia and the Far East) edited by N.A. Florensov and V.A. Nikolaev, Novosibirsk, Nauka, 1979, p.129-134, In Russian. 12 refs.
Spaceborne photography, Streams, Alpine tundra, Forest tundra, Taiga.

34-1073
Chonkemin Valley terraces and the glaciation of northern Tien Shan. [O terrasakh doliny Chonkemina i oledeneniiakh severnogo Tian'-Shania],
Bylinskaia, L.N., Istoriia razvitiia rechnykh dolin i problemy melioratsii zemel'. Sibir' i Dal'niĭ Vostok (History of river valley development and land reclamation problems in Siberia and the Far East) edited by N.A. Florensov and V.A. Nikolaev, Novosibirsk, Nauka, 1979, p.137-143, In Russian. 8 refs.
Glaciation, Glacial deposits, Moraines, Ground ice, Terraces, Land reclamation, Engineering geology, USSR—Tien Shan.

34-1074
Combined aerial survey of northwestern Siberia. [Kompleksnoe aerovizual'noe obsledovanie severa Zapadnoĭ Sibiri],
Bogoiavlenskiĭ, B.A., et al, Istoriia razvitiia rechnykh dolin i problemy melioratsii zemel'. Sibir' i Dal'niĭ Vostok (History of river valley development and land reclamation problems in Siberia and the Far East) edited by N.A. Florensov and V.A. Nikolaev, Novosibirsk, Nauka, 1979, p.169-192, In Russian. 28 refs.
Aerial surveys, Geomorphology, Landscape types, Mapping, Cryogenic soils, Swamps, Permafrost distribution, Land reclamation.

34-1075
Problems and results of studying the relief of Siberia and the Far East. [Itogi, zadachi i problemy izucheniia rel'efa Sibiri i Dal'nego Vostoka],
Nikolaev, V.A., Istoriia razvitiia rechnykh dolin i problemy melioratsii zemel'. Sibir' i Dal'niĭ Vostok (History of river valley development and land reclamation problems in Siberia and the Far East) edited by N.A. Florensov and V.A. Nikolaev, Novosibirsk, Nauka, 1979, p.192-206, In Russian. 3 refs.
Geomorphology, Land reclamation, Engineering geology, Landscape types, Cryogenic soils, Permafrost, Economic development.

34-1076
Differences in the formation of spring runoff in forests of the European USSR. [Razlichiia v formirovanii vesennego stoka v lesnoĭ zone ETS],
Krestovskiĭ, O.I., et al, *Leningrad. Gosudarstvennyĭ gidrologicheskiĭ institut. Trudy*, 1979, Vol.259, p.3-14, In Russian. 20 refs.
Deribizova, S.B., Khat'kova, N.P.
Forest land, Runoff, Meltwater, Snow cover distribution, Snow depth, Snow water equivalent, Charts.

34-1077
Forecasting spring water inflow into the Kama reservoir allowing for rainfall. [Prognoz vesennego pritoka vody v Kamskoe vodokhranilishche s uchetom dozhdevoĭ sostavliaiushcheĭ],
Liapunova, I.B., et al, *Leningrad. Gosudarstvennyĭ gidrologicheskiĭ institut. Trudy*, 1979, Vol.259, p.15-25, In Russian. 6 refs.
Osadchaia, N.N., Savina, L.K.
Reservoirs, Meltwater, Flooding, Rain, Snow water equivalent, Water reserves, Analysis (mathematics), USSR—Kama River.

34-1078
Spring runoff from small drainage basins of the Dubovskaya hydrometeorological station. [Usloviia formirovaniia vesennego stoka s malykh vodosborov Dubovskoĭ vodnobalansovoĭ stantsii],
Bystrov, A.V., *Leningrad. Gosudarstvennyĭ gidrologicheskiĭ institut. Trudy*, 1979, Vol.259, p.26-38, In Russian. 11 refs.
River basins, Drainage, Meltwater, Runoff, Snow cover distribution, Snow depth, Snow water equivalent, Soil freezing, Frost penetration, Ground ice.

34-1079
Distribution of snow cover water reserves in the northeast European USSR. [Raspredelenie zapasov vody v snezhnom pokrove v severo-vostochnykh raïonakh ETS],
Vershinina, L.K., et al, *Leningrad. Gosudarstvennyĭ gidrologicheskiĭ institut. Trudy*, 1979, Vol.259, p.58-67, In Russian. 5 refs.
Volchenko, V.N.
Forest land, Snow cover distribution, Snow depth, Snow water equivalent, Charts.

34-1080
Aerial gamma surveys for determining snow water reserves with unstable snow cover. [Otsenka vozmozhnostel opredeleniia zapasov vody v snege samoletnym gamma-metodom v raionakh s neustoichivym zaleganiem snezhnogo pokrova].
Vershinina, L.K., *Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy,* 1979, Vol.259, p.68-74, In Russian. 5 refs.
Aerial surveys, Gamma irradiation, Snow cover distribution, Snow water equivalent.

34-1081
Meltwater losses in forests due to absorption by tree bark. [Poteri talykh vod v lesu na uvlazhnenie drevesiny].
Krestovskii, O.I., et al, *Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy,* 1979, Vol.259, p.87-91, In Russian. 2 refs.
IAstrebkov, I.K.
Forestry, Trees (plants), Roots, Meltwater, Transpiration, Water reserves, Water loss.

34-1082
Errors in determining snow cover characteristics in the northeast European USSR. [Otsenka pogreshnostei opredeleniia kharakteristik snezhnogo pokrova v severo-vostochnykh raionakh ETS].
Vershinina, L.K., et al, *Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy,* 1979, Vol.259, p.113-121, In Russian. 3 refs.
Belova, L.B.
Snow surveys, Snow cover distribution, Snow water equivalent, Snow depth, Snow density, Statistical analysis, Accuracy.

34-1083
Accuracy of determining soil freezing depth at observation points. [Otsenka oshibki opredeleniia glubiny promerzaniia pochvy v punktakh nabliudenii].
Sokolova, N.V., *Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy,* 1979, Vol.259, p.122-128, In Russian. 7 refs.
Soil freezing, Frost penetration, Frozen ground, Permeability, Meltwater, Runoff, Water loss.

34-1084
Accuracy of interpolation and averaging of soil moisture content over an area. [Otsenka oshibok interpoliatsii i osredneniia po ploshchadi zapasov vlagi v pochve].
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Leonova, N.E.
Snow surveys, Soil water.

34-1085
Infiltration into soil with precipitation of arbitrary intensity. [Model' infil'tratsii vody v pochvu pri osadkakh proizvol'noi intensivnosti].
Kutuzova, G.B., *Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy,* 1979, Vol.259, p.142-148, In Russian. 4 refs.
Precipitation (meteorology), Seepage, Ground water, Water transport, Soil profiles, Mathematical models.

34-1086
Meteorological conditions for the formation of glaze-hoarfrost deposits in the lower 500-meter layer of the atmosphere. [Meteorologicheskie usloviia formirovaniia gololedno-izmorozevykh otlozhenii v nizhnem 500-metrovom sloe atmosfery].
Degtiarev, A.D., et al, *Tsentral'naia vysotnaia gidrometeorologicheskaia observatoriia. Trudy,* 1979, Vol.13, p.27-34, In Russian. 5 refs.
Klinov, F.IA.
Icing, Hoarfrost, Icing rate, Structures, Ice loads, Meteorological data.

34-1087
Nonstationary turbulent wind flow past tall structures. [Nestatsionarnoe obtekanie vysotnykh sooruzhenii turbulentnym vetrovym potokom].
Gusev, M.A., *Tsentral'naia vysotnaia gidrometeorologicheskaia observatoriia. Trudy,* 1979, Vol.13, p.51-55, In Russian. 5 refs.
Towers, Wind (meteorology), Turbulent flow, Models, Wind velocity, Stresses, Analysis (mathematics).

34-1088
Comment and reply on "Late Quaternary extent of the West Antarctic ice sheet: new evidence from Ross Sea cores".
Fillon, R.H., et al, *Geology,* Nov. 1979, 7(11), p.518-519, 17 refs.
Kellogg, T.B., Truesdale, R.S., Osterman, L.E.
Ice sheets, Grounded ice, Glacial geology, Antarctica—Ross Sea.
R. Fillon disagrees with the conclusions of Kellogg and others (1979; 33-3970 or E-21853) pertaining to the late Cenozoic history of the Ross Sea. Three principal areas of disagreement are noted: the biostratigraphic significance of *Globocassidulina biora,* the origin of the sandy unit, and the nature of Late Pliocene sedimentation. Kellogg et al hold that the concept of grounded ice filling the Ross Sea embayment, even during the last glaciation, is fundamental in interpreting the glacial history of Antarctica.

34-1089
Keewatin ice sheet—reevaluation of the traditional concept of the Laurentide Ice Sheet.
Shilts, W.W., et al, *Geology,* Nov. 1979, 7(11), p.537-541, 29 refs.
Cunningham, C.M., Kaszycki, C.A.
Ice sheets, Glacial geology, Geologic structures, Ice models, Drift.

34-1090
Climatic and synoptic study of the Weddell Sea region during the austral fall months.
Komro, F.G., Madison, University of Wisconsin, 1978, 46p., Unpublished Master's thesis. 20 refs.
Sea ice distribution, Ice conditions, Pack ice, Wind (meteorology), Climate.
This study focuses on two main topics: the climatic conditions of the Weddell Sea during the austral fall months, and an analysis of the cyclone whose windfield indirectly trapped the *General San Martin* on Feb. 26, 1975. The evidence indicates that in addition to the residence time of cyclones and or the frequency of their appearance over the central Weddell Sea, other factors, such as the polar easterlies, the damming up effect along the Peninsula, and katabatic winds must significantly account for much of the observed windfield within this region.

34-1091
Antarctic journal of the United States, Vol. 14, No.3.
U.S. National Science Foundation, Washington, D.C., Sep. 1979, 23p.
Ice sheets, Sea ice, Glaciology, Ice shelves.
This issue contains highlights of the 1979-80 U.S. Antarctic Research Program, planned field projects for 1979-80, planned major field camps, NSF funds awards for Apr. 1-June 30, 1979, monthly climate summary corrections, and special news announcements. Research highlights include geological studies of the Ellsworth Mountains and an investigation of wave-particle interactions in the magnetosphere from Siple Station. Approximately 80 science projects are planned for the coming season. Brief descriptions are given of research projects. A major field camp will be established in the Ellsworth Mountains to support geological investigations of the area. During 1980-81 a major field camp will be installed at site D-59 on the East Antarctic Ice Sheet to recover an LC-130 airplane that crashed at the site in 1971.

34-1092
Hydrochemical regime of the Arctic Ocean. [Gidrokhimicheskii rezhim Severnogo Ledovitogo okeana].
Rusanov, V.P., et al, Leningrad, Gidrometeoizdat, 1979, 144p., In Russian. 86 refs.
IAkovlev, N.I., Bulnevich, A.G.
Drift stations, Water transport, Water chemistry, Brines, Chemical composition, Arctic Ocean.

34-1093
Dynamics of natural processes in highlands. [Dinamika prirodnykh protsessov gornykh stran].
Maksimov, E.V., ed, Leningrad, 1977, 131p., In Russian. For selected papers see 34-1094 through 34-1098. Refs. passim.
DLC GB501.2.D56
Rock glaciers, Mountain glaciers, Alpine landscapes, Aerial surveys, Glacial hydrology, Buried ice, Dead glaciers.

34-1094
Relation between orography and recent glaciation of Zailiyskiy Alatau. [Sovremennoe oledenenie Zailiiskogo Alatau i ego sviaz' s orografiei].
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DLC GB501.2.D56
Mountain glaciers, Aerial surveys, Glacier ice, Ice volume, Slope orientation, Snow cover distribution, Snow line, USSR—Zailiyskiy Alatau.

34-1095
Hydraulic regime of glacial rivers and the controlling role of glaciers. [Vodnyi rezhim lednikovykh rek i reguliruiushchaia rol' lednikov].
Sokolov, D.P., Dinamika prirodnykh protsessov gornykh stran (Dynamics of natural processes in highlands) edited by E.V. Maksimov, Leningrad, 1977, p.77-83, In Russian. 6 refs.
DLC GB501.2.D56
Mountain glaciers, Glacial hydrology, Glacial rivers, Alimentation, Glacier ablation, Precipitation (meteorology).

34-1096
Buried glaciers and their origin. [Bronirovannye ledniki i ikh proiskhozhdenie].
Maksimov, E.V., Dinamika prirodnykh protsessov gornykh stran (Dynamics of natural processes in highlands) edited by E.V. Maksimov, Leningrad, 1977, p.84-92, In Russian. 8 refs.
DLC GB501.2.D56
Ground ice, Rock streams, Rock glaciers, Buried ice, Dead glaciers, Glacier ice, Moraines.

34-1097
Geographic aspects of mountain flora evolution in Central Asia. [Geograficheskie aspekty evoliutsii rastitel'nogo pokrova gor Srednei Azii].
Agakhaniants, O.E., Dinamika prirodnykh protsessov gornykh stran (Dynamics of natural processes in highlands) edited by E.V. Maksimov, Leningrad, 1977, p.93-108, In Russian. 47 refs.
DLC GB501.2.D56
Alpine landscapes.

34-1098
Cushion plants as indicators of climatic changes in the Central Asian highlands. [Rasteniia podushki kak indikatory izmenchivosti klimata v vysokogor'iakh Srednei Azii].
Ukhacheva, V.N., Dinamika prirodnykh protsessov gornykh stran (Dynamics of natural processes in highlands) edited by E.V. Maksimov, Leningrad, 1977, p.109-119, In Russian. 15 refs.
DLC GB501.2.D56
Alpine landscapes.

34-1099
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Mikhailov, IU.P., ed.
Electric power, Hydraulic structures, Environmental protection, Geocryology, Railroad tracks, Frost heave, Naleds, Snowdrifts, Taiga, Baykal Amur railroad.

34-1100
New features in economic development of the Angara River area near Krasnoyarsk in relation to the construction of the Boguchansk hydroelectric power plant. [Novye cherty v khoziaistvennom osvoenii Krasnoiarskogo Priangar'ia v sviazi so stroitel'stvom Boguchanskoi GES].
Medvedkova, E.A., Geografiia osvoeniia resursov Sibiri (Geography of Siberian resource development) edited by K.P. Kosmachev and IU.P. Mikhailov, Novosibirsk, Nauka, 1979, p.19-32, In Russian. 20 refs.
Hydraulic structures, Electric power, Railroads, USSR—Angara River.

34-1101
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Railroads, Embankments, Railroad tracks, Permafrost beneath structures, Human factors, Environmental protection, Geocryology, Snowdrifts, Frost heave, Naleds.

34-1102
Taking inventory of natural grasslands by large-scale surveys of the Ob'-Irtysh floodplain, Tyumen' Region. [Inventarizatsiia kormovykh resursov Ob'-Irtyshskoi poimy Tiumenskogo Severa na osnove krupnomasshtabnykh issledovanii].
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Taiga, USSR—Tyumen'.

34-1103
Railroad design for severe climatic conditions. [K voprosu proektirovaniia zheleznykh dorog v raionakh s surovymi klimaticheskimi usloviiami].
Akkerman, G.L., *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy,* 1978, Vol.614, p.29-34, In Russian. 1 ref.
Railroads, Permafrost beneath structures, Cold weather construction, Design, Cost analysis.

34-1104
Determining railroad construction costs in developing areas. [K voprosu opredeleniia stoimosti stroitel'stva novykh zheleznykh dorog v maloosvoennykh raĭonakh],
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Railroads, Permafrost beneath structures, Cold weather construction, Cost analysis.

34-1105
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Leĭbman, G.D., et al, *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy,* 1978, Vol.615, p.67-72, In Russian.
Shul'man, T.A.
Modular construction, Buildings, Permafrost beneath structures, Cold weather construction, Cost analysis, Baykal Amur railroad.

34-1106
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Zubkova, K.M., *Leningrad. Gosudarstvennyĭ gidrologicheskiĭ institut. Trudy,* 1979, Vol.267, p.26-35, In Russian. 14 refs.
Slope processes, Soil erosion, Snow cover distribution, Snow melting, Streams, Sediment transport.

34-1107
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Deck, D., *U.S. Army Cold Regions Research and Engineering Laboratory,* Dec. 1978, SR 78-30, 30p. ADA-063 874.
River ice, Ice growth, Ice cover thickness, Frazil ice.
Ice thickness, growth rates and characteristics of river ice are tabulated for use with a planned physical hydraulic model of the Ottauquechee River in Quechee, Vermont, using real ice.

34-1108
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Denoth, A., et al, *U.S. Army Cold Regions Research and Engineering Laboratory,* Jan. 1979, CR 79-1, 19p. ADA-066 935.
Seidenbusch, W., Blumthaler, M., Kirchlechner, P., Ambach, W.
Snow, Water flow, Drainage.
Experiments were conducted to study the flow of water through columns of homogeneous, repacked snow. The gravity flow theory of water flow through snow was verified, although possibly there is some dependence of the relative permeability on the state of metamorphism of the snow. Also, at very large values of saturation there may be some additional flow in saturated channels.

34-1109
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Water treatment, Waste treatment, Water supply, Sewage disposal.

34-1110
Evaluation and prediction of avalanche hazard, San Juan Mountains, Colorado.
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Armstrong, B.R.
Avalanche forecasting, Avalanche modeling, United States—Colorado—San Juan Mountains.

34-1111
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Microwaves, Snow cover, Remote sensing, Snow density.

34-1112
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Haws, D.A.
Waste disposal, Water treatment, Irrigation, Sewage treatment, Water chemistry, Microbiology, Bacteria.

34-1113
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Irwin, G.J., *Canada. Defence Research Establishment, Ottawa. DREO report,* Feb. 1979, DREO-801, 29p. ADA-067 295.
Snow cover structure, Metamorphism (snow), Classifications, Penetrometers, Snow vehicles, Permafrost, Cold weather tests.

34-1114
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Aircraft icing, Mathematical models.

34-1115
Arctic ice.
Zubov, N.N., *U.S. Air Force Geophysics Laboratory. Technical report,* Jan. 1979, AFGL-TR-79-34, 500p., ADA-064 611, Translation of Arktícheskiĭ led', Moscow, 1945. For Russian original see SIP U890, July 1952. 179 refs.
Polar regions, Sea ice, Icebergs, Oceanography, Salinity, Cold weather tests, Shoreline modification.

34-1116
Field testing of a snowplowable raised marker.
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Roads, Markers, Snow removal.

34-1117
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LaChapelle, E.R., et al, *Washington. State Department of Transportation. Research program report,* July 1978, WSDOT-19.3, 62p. PB-294 780.
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Avalanche triggering, Snow cover stability, Explosion effects, Inflatable structures.

34-1118
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Avalanche forecasting, Snow cover stability, Research projects, Weather forecasting, Computer applications.

34-1119
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Tatarskiĭ, V.I.
Thermal radiation, Radiometry, Glacier ice, Stratification.
Multiple reflection from inhomogeneities is used to derive features of thermal radio emission of layered structures such as antarctic glaciers. The coefficients of reflection of electromagnetic waves from a random layered medium with a small dielectric loss are calculated for both horizontal and vertical polarizations. The equations containing the function of probability distribution for the reflection coefficient are used. The angular distributions of brightness temperature are obtained for both polarizations. The computed results are compared with experimental data obtained by remote sensing from the satellites Cosmos-243 and Cosmos-384. (Auth.)

34-1120
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Mountain glaciers, Alpine glaciation, Ice cover thickness, Ice volume, Glacial hydrology, Glacial deposits, Snow cover distribution, Snow water equivalent, Snow surveys, Aerial surveys, Helicopters, Avalanche forecasting, Avalanche engineering.

34-1121
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Nikiforov, M.V., Pegoev, N.N., Suslov, A.V.
Snow cover distribution, Snow surveys, Aerial surveys, Helicopters, USSR—Tien Shan.

34-1122
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Shentsis, I.D.
Snow surveys, Aerial surveys, Helicopters, River basins, Snow cover distribution, Snow depth, Snow water equivalent.

34-1123
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River basins, Snow cover distribution, Snow surveys, Snow accumulation, Snow depth, USSR—Obikhingou River.

34-1124
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Snow surveys, USSR—Central Asia.

34-1125
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Shentsis, I.D.
Snow surveys, River basins, Snow water equivalent, Snow cover distribution, Snow depth, Snow density, Analysis (mathematics).

34-1126
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Moskalev, IU.D., *Sredneaziatskiĭ regional'nyĭ nauchno-issledovatel'skiĭ gidrometeorologicheskiĭ institut. Trudy,* 1979, Vol.64, p.51-60, In Russian. 3 refs.
Avalanche forecasting, Snow surveys, Snow cover distribution, Snow depth, Snow density, Avalanche formation, Avalanche mechanics.

34-1127
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Snow surveys, Snow accumulation, Snow depth, Snow density, Avalanche forecasting, Wet snow.

34-1128
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Snow cover distribution, Snow surveys, Avalanche forecasting, Avalanche formation, Avalanche mechanics, USSR—Pamirs.

34-1129
Construction of 220 kv overhead lines in avalanche areas of the Baikal and Severo-Muyskiy ranges. [Usloviia prolozheniia VL-220 kV na lavinoopasnykh uchastkakh Baikal'skogo i Severo-Muiskogo khrebtov], Akulov, V.V., et al, *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy,* 1979, Vol.64, p.75-84, In Russian. 10 refs.
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Avalanche engineering, Power lines, Avalanche forecasting, Avalanche formation, Baykal Amur railroad.

34-1130
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Aerial surveys, Avalanche forecasting, Avalanche formation, Snow surveys, USSR—Tien Shan.

34-1131
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Avalanche formation, Avalanche forecasting, Mountain glaciers, Snow cover distribution, USSR—Pamirs.

34-1132
Ways and means of protecting mines from avalanches. [Vybor sredstv i sposobov protivolavinnoi zashchity gornogo predpriiatiia], Kozhevnikov, V.S., *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy,* 1979, Vol.64, p.104-112, In Russian. 11 refs.
Mining, Avalanche engineering, Avalanche formation, Avalanche mechanics.

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Glacier ice, Ice shelves, Drilling, Research projects, Antarctica—Ross Ice Shelf.
Participating nations in the IAGP reported accomplishments in 1972 and outlined plans for 1973. The glaciology working group formulated plans and recommendations which include additional glaciological work on the Antarctic Peninsula, satellite investigation of sea ice variations, use of glacial deposits to monitor world-wide pollution levels, and micro-glaciological studies in East Antarctica. Borehole site selection has already begun on the Ross Ice Shelf.

34-1195
New phase in the study of the glacial cover in Antarctica.
Kotliakov, V.M., Data of glaciological studies. Translated from Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.123-172, PB-293 100-T, For Russian original see 29-3852 or F-15171.
Ice sheets, Research projects, History, Antarctica—East Antarctica.
Following a brief outline of recent (last 70 yr) antarctic research and the development of international cooperation in research as instruments and techniques became more sophisticated, the author describes the founding and work of the IAGP. This cooperative venture concentrates on all phases of glaciers and ice cover in East Antarctica using modern methods and instrumentation to measure and calculate ice physical properties and dimensions.

34-1196
Mass balance of the Dzhankuat Glacier from 1967-1971 and the methods used to measure and calculate it.
Golubev, G.N., et al, Data of glaciological studies. Translated from Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.173-191, PB-293 100-T, For Russian original see 29-1853. 3 refs.
Durgerov, M.B.
Glacier mass balance, Glacier alimentation, Glacier ablation, Measurement.

34-1197
On the application of existing models of movement to calculating the velocity fields of mountain glaciers (for example, the Central Tujuksu Glacier).
Tulina, T.U., Data of glaciological studies. Translated from Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.192-207, PB-293 100-T, For Russian original see 28-3854. 16 refs.
Glacier flow, Velocity measurement, Mathematical models.

34-1198
Relationship of snow transport to snow storm duration.
Grishin, I.S., Data of glaciological studies. Translated from Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.208-219, PB-293 100-T, 12 refs.
Snowstorms, Blowing snow.

34-1199
Runoff of suspended deposits in glacier adjacent zones.
Chernov, L.P., Data of glaciological studies. Translated from Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.220-234, PB-293 100-T, 21 refs.
Glacial deposits, Suspended sediments, Runoff, Turbidity.

34-1200
Laws governing the thawing of an artificially dusted glacier surface.
Bazhev, A.B., Data of glaciological studies. Translated from Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.271-296, PB-293 100-T, For Russian original see 29-3855. 7 refs.
Glacier melting, Dusting, Artificial melting.

34-1201
Form and motion of the Kolka Glacier after its surge and probable mechanism of this surge.
Garelik, I.S., et al, Data of glaciological studies. Translated from Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.296-311, PB-293 100-T, 3 refs.
Grinberg, A.M.
Glacier surges, Glacier flow, Subsidence, Ice deformation.

34-1202
Recent trends in the ice cover of the Arctic Ocean.
Shpaikher, A.O., Data of glaciological studies. Translated from Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.311-322, PB-293 100-T, 8 refs.
Sea ice distribution, Periodic variations, Icebergs, Meteorological factors, Water temperature.

34-1203
Physical and mechanical properties of the ice cover of the Kara and Laptev Seas.
Peschanskii, I.S., et al, Data of glaciological studies. Translated from Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.322-333, PB-293 100-T, For Russian original see 29-3856. 3 refs.
Chikovskii, S.S.
Sea ice, Ice mechanics, Ice cover strength, Ice forecasting.

34-1204
On some rules governing the formation of ice jams and the computation of the type of preventive measures to be taken.
Tsykin, E.N., et al, Data of glaciological studies. Translated from Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.334-346, PB-293 100-T, For Russian original see 29-3857.
Tsykina, G.A.
Ice jams, Flood forecasting, Countermeasures, River ice.

34-1205
New system for the artificial reduction of the mechanical strength and the heat conductivity of the ice covers of reservoirs.
Faiko, L.I., Data of glaciological studies. Translated from Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.346-353, PB-293 100-T, 3 refs.
Reservoirs, Ice control, Ice cover strength, Aeration.

34-1206
Variation of the turbulent exchange on a mountain glacier.
Davidovich, N.V., et al, Data of glaciological studies. Translated from Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.367-379, PB-293 100-T, For Russian original see 29-3859. 5 refs.
Popova, V.S.
Turbulent exchange, Heat flux, Glacier ablation, Mountain glaciers.

34-1207
Electrolytic conductivity of water, snow and ice in the basin of the Kolka Glacier.
Fleetwood, A., Data of glaciological studies. Translated from Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.387-395, PB-293 100-T, For Russian original see 29-3860. 7 refs.
Electrical resistivity, Glacier ice, Meltwater, Snow, Glacier surges.

34-1208
Palynological data for the characterization of the snow-firn strata of the Gergeti Glacier.
Psareva, T.V., et al, Data of glaciological studies. Translated from Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.396-406, PB-293 100-T, For Russian original see 29-3861. 9 refs.
Surova, T.G.
Pollen, Mountain glaciers, Snow cover structure, Firn stratification.

34-1209
Influence of snow deformation on the traffic of low-powered amphibian airsleighs.
Sboev, V.V., Data of glaciological studies. Translated from Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.429-433, PB-293 100-T, For Russian original see 29-3862. 6 refs.
Snow deformation, Snow vehicles.

34-1210
Results of gravimetric measurements of the ice thickness on the Obruchev Glacier.
Macheret, IU.IA., Data of glaciological studies. Translated from Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.434-439, PB-293 100-T, For Russian original see 29-3863. 3 refs.
Glacier ice, Ice cover thickness, Gravimetric prospecting.

34-1211
Variation of isotope O-18 in the mass of the Marukh Glacier (Western Caucasus).
Bazhev, A.B., et al, Data of glaciological studies. Translated from Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.440-454, PB-293 100-T, For Russian original see 29-3864. 15 refs.
Gordienko, F.G., Smirnov, K.E.
Glacier ice, Isotope analysis, Firn stratification, Glacier thickness.

34-1212
Simultaneous investigations of ice, water and heat balance in typical glacial basins.
Kotliakov, V.M., Data of glaciological studies. Translated from Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.463-491, PB-293 100-T, For Russian original see 29-3865.
Glacier mass balance, Glacier heat balance.

34-1213
Role of the internal seepage alimentation in the mass balance of glaciers and methods for determining it.
Bazhev, A.B., Data of glaciological studies. Translated from Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.492-521, PB-293 100-T, For Russian original see 29-3866. 11 refs.
Glacier mass balance, Seepage, Measurement, Snow accumulation.

34-1214
Annotated list of Soviet literature on glaciology (1969).
Kotliakov, V.M., comp, Data of glaciological studies. Translated from Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.524-692, PB-293 100-T, 444 refs.
Lapina, I.IA., comp, Chernova, L.P., comp.
Bibliographies, Glaciology.

34-1215
Thermal rock drill for permafrost. [Ustroistvo dlia termicheskogo razrusheniia gornykh porod],
Goldaev, I.P., et al, *Russia. Komitet po delam izobretenii i otkrytii. Patent*, Oct. 12, 1973, 4 col., SOVP-1256888/22-3, For English abstract see Soviet inventions illustrated, Sec.3: Mechanical, Sep. 1973, V(31), No.258-206.
Thermal drills, Rock drilling, Equipment, Permafrost.

34-1216
Snow retention heaper and swather. [Orudie dlia obrazovaniia valkov i kuch pri snegozaderzhanii],
Gromov, V.S., *Russia. Komitet po delam izobretenii i otkrytii. Patent*, Feb. 25, 1974, 4 col., SOVP-1634291/30-15, For English abstract see Soviet inventions illustrated, Sec.3: Mechanical, 1975, W(6), No.416-025.
Snow retention, Equipment.

34-1217
Ice breaking anti soil erosion plough. [Orudie dlia razrezaniia ledianoi korki pri protivoerozionnoi obrabotke pochvy],
Shikula, N.K., et al, *Russia. Komitet po delam izobretenii i otkrytii. Patent*, Feb. 25, 1974, 2 col., SOVP-1752217/30-15, For English abstract see Soviet inventions illustrated, Sec.3: Mechanical, 1975, W(6), No.416-027.
Fedorov, V.A., Podgornyi, V.K.
Ice breaking, Equipment, Soil erosion, Countermeasures.

34-1218
Constructional thermal insulating blanket. [Teploizoliatsionnyi mat],
Tsimermanis, L.B., et al, *Russia. Komitet po delam izobretenii i otkrytii. Patent*, Mar. 5, 1976, 2 col., SOVP-1484436/29-14, For English abstract see Soviet inventions illustrated, Sec.3: Mechanical, Feb. 1977, X(51), No.505-777.
Chernov, A.N., Klimov, IU.M., Genkin, A.R., Mitus, V.M.
Thermal insulation, Cellular plastics.

34-1219
Snow remover vehicle with balance weight. [Rotornyi snegoochistitel'],
Pisarchik, V.B., et al, *Russia. Komitet po delam izobretenii i otkrytii. Patent*, Jan. 25, 1976, 4 col., SOVP-1989456/27-11, For English abstract see Soviet inventions illustrated, Sec.3: Mechanical, Feb. 1977, X(51), No.500-331.
Mishin, V.A., Ivanov, A.N., Shvetsov, A.M.
Snow removal, Snow vehicles.

34-1220
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Gridasov, N.A., et al, *Russia. Komitet po delam izobretenii i otkrytii. Patent*, Jan. 25, 1976, 4 col., SOVP-1931642/27-11, For English abstract see Soviet inventions illustrated, Sec.3: Mechanical, Feb. 1977, X(51), No.500-332.
Kozlov, I.N.
Snow removal, Snow vehicles, Railroad tracks.

34-1221
Winter season roadmaking method. [Sposob vozvedeniia dorozhnogo osnovaniia],
Kurdenkov, B.I., et al, *Russia. Komitet po delam izobretenii i otkrytii. Patent*, Jan. 25, 1976, 4 col., SOVP-1860475/29-33, For English abstract see Soviet inventions illustrated, Sec.3: Mechanical, Feb 1977, X(51), No.500-325.
Egozov, V.P., Smirnov, A.A., Kurdenkov, I.B.
Construction, Winter maintenance, Roadbeds.

34-1222
Snow clearance vehicle with rotor. [Rabochii organ snegouborochnoi mashiny],
Orlov, IU.N., *Russia. Komitet po delam izobretenii i otkrytii. Patent*, Jan. 5, 1976, 2 col., SOVP-1846796/27-11, For English abstract see Soviet inventions illustrated, Sec.3: Mechanical, Feb. 1977, X(51), No.498-389.
Snow removal, Snow vehicles.

34-1223
Water area drift ice protection device. [Ustroistvo dlia zashchity akvatorii ot bitogo dreifuiushchego l'da],
Ivanov, L.V., et al, *Russia. Komitet po delam izobretenii i otkrytii. Patent*, Jan. 25, 1976, 4 col., SOVP-1958779/27-11, For English abstract see Soviet inventions illustrated, Sec.3: Mechanical, Feb. 1977, X(51), No.500-117.
Fedorov, I.P., Andreev, N.D.
Docks, Drift, Protection, Ice loads, Equipment.

34-1224
De-icing system for hydro-pneumatic units. [Ustroistvo dlia predotvrashcheniia obledeneniia pnevmogidroapparatury],
Baldin, V.I., et al, *Russia. Komitet po delam izobretenii i otkrytii. Patent*, Feb. 28, 1974, 4 col., SOVP-1824271/25-8, For English abstract see Soviet inventions illustrated, Sec.3: Mechanical, Feb. 18, 1975, W(2), No.417670.
Ermilin, V.A.
Chemical ice prevention, Icing, Equipment.

34-1225
Air- and spaceborne remote sensing in hydrogeology and engineering geology. [Aerokosmicheskie metody v gidrogeologii i inzhenernoi geologii],
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Revzon, A.L.
Remote sensing, Telemetering equipment, Airborne radar, Spaceborne photography, Photointerpretation, Infrared equipment, Radar echoes, Snow cover distribution, Snow water equivalent, Soil water.

34-1226
Artificial freezing of ground in underground construction. [Zamorazhivanie gruntov pri stroitel'stve podzemnykh sooruzhenii],
Trupak, N.G., Moscow, Nedra, 1979, 344p., In Russian with English table of contents enclosed. 18 refs.
Subsurface structures, Underground facilities, Earthwork, Artificial freezing, Coolants, Pipelines, Thermal insulation, Frozen ground, Ground ice, Liquefied gases, Underground storage, Earth dams, Cooling systems, Cooling rate.

34-1227
Ocean 75 record.
Conference on Engineering in the Ocean Environment, San Diego, Calif., Sep. 22-25, 1975, New York, Institute of Electrical and Electronics Engineers, 1975, 952p., Refs. passim. For selected papers see 34-1228 through 34-1236.
DLC TC1505.C63 1975
Oceanographic surveys, Sea ice distribution, Remote sensing, Meteorological data, Computer applications.

34-1228
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Sea ice distribution, Remote sensing, Buoys, Telemetering equipment, Computer applications, Design.

34-1229
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Hall, J.M., et al, Conference on Engineering in the Ocean Environment, San Diego, Calif., Sep. 22-25, 1975. Ocean 75 record, New York, Institute of Electrical and Electronics Engineers, 1975, p.56-69, 18 refs.
Kerut, E.G.
Sea ice distribution, Meteorological data, Oceanographic surveys, Buoys, Telemetering equipment, Computer applications.

34-1230
Thermal drill for making large holes in sea ice.
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Harrison, J.G.
Thermal drills, Sea ice, Heat transfer, Ice melting.

34-1231
Motion of icebergs due to changes in water currents.
Sodhi, D.S., et al, Conference on Engineering in the Ocean Environment, San Diego, Calif., Sep. 22-25, 1975. Ocean 75 record, New York, Institute of Electrical and Electronics Engineers, 1975, p.348-350.
Dempster, R.T.
Icebergs, Drift, Ocean currents, Tidal currents, Analysis (mathematics).

34-1232
SYNRAMS ice station.
Burke, S.P., et al, Conference on Engineering in the Ocean Environment, San Diego, Calif., Sep. 22-25, 1975. Ocean 75 record, New York, Institute of Electrical and Electronics Engineers, 1975, p.413-417, 3 refs.
Buck, B.M.
Drift stations, Meteorological data, Oceanographic surveys, Buoys, Measuring instruments, Computer applications.

34-1233
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Kim, J.K.
Ships, Oceanographic ships, Ice breaking, Icebreakers, Models.

34-1234
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Needham, B.H., Conference on Engineering in the Ocean Environment, San Diego, Calif., Sep. 22-25, 1975. Ocean 75 record, New York, Institute of Electrical and Electronics Engineers, 1975, p.798-802, 12 refs.
ERTS imagery, Sea ice distribution, Ice detection, Icebergs, Remote sensing, Oceanographic surveys, Oil spills, Upwelling, Coastal topographic features, Mapping.

34-1235
Use of satellite infrared imagery in the oceanographic study of the Chukchi Sea.
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Becker, P.
Sea ice distribution, Ice floes, Drift, Oceanographic surveys, Infrared reconnaissance, Water temperature, Salinity, Seasonal variations, Chukchi Sea.

34-1236
Use of NOAA environmental satellites to remotely sense ocean phenomena.
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Oceanographic surveys, Ice conditions, Remote sensing, Radiometry, Photointerpretation, Infrared photography.

34-1237
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Clay minerals, Crystal growth, Chemistry, Crystal defects, Electric charge, Compressive properties, Compaction, Bearing strength, Classifications.

34-1238
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Concrete structures, Reinforced concretes, Permafrost beneath structures, Design, Shells.

34-1239
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Roofs, Snow loads.

34-1240
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Snow loads, Roofs, Steel structures, Snow accumulation, Building codes.

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Meetings, Winter maintenance, Snow removal, Ice detection, Cost analysis.

34-1242
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Hoekstra, H., *Neve international,* Sep. 1979, 21(2-3), p.19-29, In English with French (p.82-84) and German (p.88-90) summaries.
Winter maintenance, Equipment, Salting, Water pollution, Ice detection, Brines, Cost analysis.

34-1243
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Hintikka, J., et al, *Neve international,* Sep. 1979, 21(2-3), p.29-35, In English with French (p.84) and German (p.90) summaries.
Johansson, T.
Road maintenance, Winter maintenance, Standards, Snow removal.

34-1244
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Road maintenance, Equipment, Management.

34-1245
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Road maintenance, Winter maintenance, Logistics.

34-1246
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Hammond, J.L., *Neve international,* Sep. 1979, 21(2-3), p.47-55, In English and French with English (p.80) French (p.86) and German (p.92) summaries.
Road maintenance, Winter maintenance, Cost analysis.

34-1247
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Road maintenance, Winter maintenance, Data processing, Management.

34-1248
Information for motorists on road conditions. [Information des usagers sur l'état des routes].
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Winter maintenance, Roads, Telecommunication.

34-1249
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Chernitskiĭ, A.V., *Transportnoe stroitel'stvo,* Sep. 1979, No.9, p.5-6, In Russian.
Transportation, Cold weather construction, Helicopters, Construction equipment, Construction materials.

34-1250
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Shcherbakov, E.N., et al, *Transportnoe stroitel'stvo,* Sep. 1979, No.9, p.13-15, In Russian.
Tunnels, Linings, Lightweight concretes, Frost resistance.

34-1251
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Dredging, Polynyas, Construction equipment, Cold weather construction, Lake ice.

34-1252
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Prefabrication, Cellular concretes, Panels, Frost resistance, Walls, Large panel buildings, Residential buildings.

34-1253
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Kaliaukhov, A.V., Zorin, B.A., Sergeev, O.D.
Earthwork, Tractors, Hammers, Frozen ground, Cables (ropes).

34-1254
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Electric power, Baykal Amur railroad, Workshops.

34-1255
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Karaulov, A.M.
Roadbeds, Embankments, Foundations, Bearing strength, Design.

34-1256
Allowing for seismic effects when designing reinforced concrete culverts beneath embankments. [Uchet seĭsmicheskikh vozdeĭstviĭ pri proektirovanii zhelezobetonnykh vodopropusknykh trub pod nasypiami].
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Field observations at 60 sites located in the fast or near-fast ice along a 1200-km stretch of the north coast of Alaska between Bering Strait and Barter Island have shown that 95% of the ice samples exhibit striking c-axis alignments within the horizontal plane. Such alignments were usually well developed by the time the ice was 50 cm thick and in some cases when the ice was 20 cm thick. In all cases the degree of preferred orientation increased with depth in the ice. Representative standard deviations around a mean direction in the horizontal plane are commonly less than 10 deg for samples collected near the bottom of the ice. The general patterns of the alignments support a correlation between the preferred c-axis direction and the current direction at the ice/water interface. A comparison between c-axis alignments and spot current measurements made at 42 locations shows that the most frequent current direction coincides with the mean c-axis direction. Such alignments are believed to be the result of geometric selection with the most favored orientation being that in which the current flow normal to the (0001) plates of ice that compose the dendritic sea ice/sea water interface

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Tripol'nikov, V.P.
Ice water interface, Electromagnetic properties, Ice cover thickness, Radar echoes.
Experimental data are cited which define the electromagnetic contrast of a marine ice-water boundary. The study was conducted on pack and year-old ice at drift station SP-19, using video pulses of varying length and radio pulses with a charge frequence of 200 MHz.

34-1398
Pipelines in adverse environments; a state of the art, Vol.2.
American Society of Civil Engineers Pipeline Division Specialty Conference, New Orleans, Louisiana, Jan. 15-17, 1979, New York, N.Y., American Society of Civil Engineers, 1979, p.395-548, For selected papers see 34-1399 through 34-1403. For Vol.1 see 33-2070 through 33-2080.
Pipelines, Cold weather construction, Pipe laying, Hydraulic structures, Frozen ground mechanics, Artificial freezing.

34-1399
Engineering innovation for Arctic conditions.
Brown, R.J., American Society of Civil Engineers Pipeline Division Specialty Conference, New Orleans, Louisiana, Jan. 15-17, 1979. Proceedings, Vol.2, New York, N.Y., American Society of Civil Engineers, 1979, p.418-429.
Hydraulic structures, Sea ice, Pipe laying, Trenching, Models.

34-1400
Geotechnical surveillance and monitoring of the Trans-Alaska Pipeline.
Williams, R.D., et al, American Society of Civil Engineers Pipeline Division Specialty Conference, New Orleans, Louisiana, Jan. 15-17, 1979. Proceedings, Vol.2, New York, N.Y., American Society of Civil Engineers, 1979, p.474-480, 2 refs.
Thomas, H.P.
Monitors, Cold weather construction, Pipelines, Permafrost preservation.

34-1401
Cold region pipeline construction.
Pendarvis, R.C., American Society of Civil Engineers Pipeline Division Specialty Conference, New Orleans, Louisiana, Jan. 15-17, 1979. Proceedings, Vol.2, New York, N.Y., American Society of Civil Engineers, 1979, p.481-485, 7 refs.
Cold weather construction, Pipelines, Climatic factors, Logistics.

34-1402
Pipe-soil interaction, Trans-Alaska Pipeline.
Luscher, U., et al, American Society of Civil Engineers Pipeline Division Specialty Conference, New Orleans, Louisiana, Jan. 15-17, 1979. Proceedings, Vol.2, New York, N.Y., American Society of Civil Engineers 1979, p.486-502, 12 refs.
Thomas, H.P., Maple, J.A.
Cold weather construction, Underground pipelines.

34-1403
Arctic winter construction and cost estimating of the North Slope fuel gas pipeline.
Bock, G.R., American Society of Civil Engineers Pipeline Division Specialty Conference, New Orleans, Louisiana, Jan. 15-17, 1979. Proceedings, Vol.2, New York, N.Y., American Society of Civil Engineers, 1979, p.511-520.
Gas pipelines, Cold weather construction, Underground facilities, Cost analysis, Trenching, Soil temperature.

34-1404
Meteorological aspects of the drift of ice from the Weddell Sea toward the mid-latitude westerlies.
Schwerdtfeger, W., *Journal of geophysical research*, Oct. 20, 1979, 84(C10), p.6321-6328, 31 refs.
Ice shelves, Sea ice, Drift, Wind (meteorology), Weddell Sea.
Persistent, moderate to strong southerly surface winds, so-called barrier winds, develop along the east side of the Antarctic Peninsula when the prevailing easterlies over the central and southern Weddell Sea carry cold, stable air masses toward the 1200- to 2000-m-high mountain barrier. Because of the lack of observations from the Weddell Sea itself, wind data for the topographically similar Ross Ice Shelf area are used to estimate the probable lateral extent of barrier winds. Frequency and duration of different types of winds at the key station Matienzo indicate the importance of the barrier effect for the drift of large ice masses northward and northeastward to the relatively low latitude of 63S. Such a guided discharge of ice into the belt of the subpolar and mid-latitude westerlies, not to be found in other sectors of the Antarctic, has a profound effect on the temperature conditions over the southern South Atlantic. Evidence for each of these statements is presented. (Auth.)

34-1405
New role for icebergs.
Quinn, K.J., *Marine affairs journal*, Jan. 1978, No.5, p.72-95, 94 refs.
Iceberg towing, Ice (water storage), Water supply.
This discussion proceeds in two parts: first, it describes the emerging geographic qualities and attributes with which other world regions could most directly apply the practice of obtaining icebergs as a source of fresh water and other benefits, using current knowledge of the situation. Second, it examines the undecided nature of international law governing the ownership and transfer of icebergs. The characteristics of the iceberg resources available are described and the desirable attributes of a compatible destination are outlined. Present studies have concluded that towing antarctic icebergs to arid regions is technically feasible and can provide large quantities of fresh water at costs significantly lower lower than capital and/or energy-intensive alternate processes such as overland conveyance or seawater desalination.

34-1406
Summary report.
Workshop on Remote Sensing of Sea Ice, Washington, D.C., Oct. 16-20, 1978, World Meteorological Organization, Commission for Marine Meteorology, [1978], 23p.
DAS, A GB2401.W8
Sea ice distribution, Remote sensing, Ice mechanics, Photointerpretation, Airborne equipment, Mapping, Meetings.

34-1407
NOAA satellite-derived continental snow cover data base.
Wiesnet, D.R., et al, *Glaciological data*, Aug. 1979, GD-6, p.3-8, 4 refs.
Matson, M.
Snow cover distribution, Remote sensing, Meteorological data, Charts, Spacecraft.

34-1408
Snow and pack ice indices.
Kukla, G., et al, *Glaciological data*, Aug. 1979, GD-6, p.9-14, 1 ref.
Gavin, J.
Snow cover distribution, Pack ice, Ice conditions, Indexes (ratios), Heat balance, Charts.
Data on snow pack ice distribution in the Northern and Southern Hemispheres are obtained by analyzing NOAA charts. A total of 70 geographic segments are assessed. Measurement is done by counting grid points along latitudinal lines. The grid density for the Southern Hemisphere is 2 deg of longitude per 2 deg of latitude equatorwards of latitude 70 deg, and 4 deg of longitude per 2 deg of latitude polewards of latitude 70 deg. A separate set of snow and ice cover indices is obtained by planimetering NOAA charts.

34-1409
Alaskan snow cover.
Benson, C.S., *Glaciological data*, Aug. 1979, GD-6, p.19-25, 25 refs.
Snow physics, Depth hoar, Tundra regions, Taiga, Meteorological factors.

34-1410
Snow survey of Great Britain.
Ogden, R.J., *Glaciological data*, Aug. 1979, GD-6, p.27-37.
Snow surveys, Snow cover distribution, Snow depth, United Kingdom.

34-1411
Focus on U.S. snow research.
Colbeck, S.C., *Glaciological data*, Aug. 1979, GD-6, MP 1261, p.41-52, 34 refs.
Snow surveys, Research projects, Impact, Agriculture, Water reserves.

34-1412
Snow and the organization of snow research in the United States.
Colbeck, S.C., *Glaciological data*, Aug. 1979, GD-6, MP 1262, p.55-58, 1 ref.
Snow surveys, Research projects.

34-1413
Snow cover: a selected bibliography. *Glaciological data*, Aug. 1979, GD-6, p.71-93.
Snow surveys, Bibliographies, Snow cover.
This bibliography of world literature covers areal snow cover distribution, its temporal variations, and measurement techniques. The citations are divided into the following subjects: general, snow cover extent, and snow cover mapping and remote sensing applications. Coverage in limited to works published from 1969 to 1979.

34-1414
Glaciation of Antarctica (study results and prospects).
Aver'ianov, V.G., et al, *Polar geography*, July-Sep. 1978, 2(3), p.154-163, For Russian original see 9E-18381 or 31-3521. 35 refs.
Korotkevich, E.S.
Ice sheets, Glaciology.
This is a review article on Soviet efforts in antarctic glaciology and other research areas, such as meteorology and hydrology, impinging on the present and past glaciation of the continent. The current need is to expand the research effort at continental stations where the ice sheet is less responsive to influences from without and is most stable.

34-1415
Ground control and interpretation of satellite imagery in Antarctica.
Lutsenko, E.I., *Polar geography*, July-Sep. 1978, 2(3), p.164-166, For Russian original see 9C-18402. 3 refs.
Spaceborne photography, Photointerpretation, Mapping, Ice conditions.
United States satellite imagery, obtained from ESSA 8 and Nimbus 4, was used by Soviet Antarctic expeditions in 1969-1973 for the analysis of weather and ice conditions. The technique used to fit the satellite imagery to a grid of geographic coordinates and the use of known landmarks as ground control points are described. (Auth.)

34-1416
Icing of ships.
Panov, V.V., *Polar geography*, July-Sep. 1978, 2(3), p.166-186, For Russian original see 9F-17923 or 31-1684. 77 refs.
Icing, Ice prevention, Wind factors, Ship icing.
Soviet and non-Soviet studies on conditions of ship icing are reviewed. Icing problems in the Antarctic are briefly touched upon.

34-1417
Changes in the amount of multi-year ice in arctic seas during the current cooling trend.
Bulatov, L.V., et al, *Polar geography*, July-Sep. 1978, 2(3), p.216-218, 3 refs. For Russian original see 31-3545.
Zakharov, V.F.
Sea ice, Climatic changes.

34-1418
Specialization of winter road maintenance, a pressing issue. [Spetsializatsiia zimnego soderzhaniia dorog nazrevshii vopros],
Kungurtsev, A.A., et al, *Avtomobil'nye dorogi*, Sep. 1979, No.9, p.7-8, In Russian. 4 refs.
Ivanov, V.D.
Winter maintenance, Railroad tracks, Snow removal, Ice prevention, Roads.

34-1419
Ways of improving winter maintenance of roads. [Puti uluchsheniia zimnego soderzhaniia dorog],
Bialobzheskii, G.V., et al, *Avtomobil'nye dorogi*, Sep. 1979, No.9, p.9-11, In Russian.
Slobodchikov, IU.V.
Winter maintenance, Snow removal, Ice prevention, Embankments, Snow cover distribution, Snow depth, Roads, Design.

34-1420
Maintenance felling of trees in snow protection strips. [Konstruktivnye rubki ukhoda v snegozashchitnykh nasazhdeniiakh],
Kazanskii, V.D., *Avtomobil'nye dorogi*, Sep. 1979, No.9, p.11-13, In Russian.
Snowdrifts, Protective vegetation, Forest strips, Roads.

34-1421
Ice prevention, a condition of safe driving. [Likvidatsiia skol'zkosti—glavnoe uslovie bezopasnosti dvizheniia],
Titov, B.M., *Avtomobil'nye dorogi*, Sep. 1979, No.9, p.13, In Russian.
Winter maintenance, Ice prevention, Snow removal, Roads.

34-1422
Winter construction of roadbeds. [Osobennosti vozvedeniia zemlianogo polotna zimoi],
Kostel'ov, M.P., et al, *Avtomobil'nye dorogi*, Sep. 1979, No.9, p.20-21, In Russian. 3 refs.
Vasil'ev, IU.M., Ievlev, V.M.
Roadbeds, Cold weather construction, Soil freezing, Frost penetration, Construction equipment, Roads.

34-1423
Road pavements in oil producing areas of Tyumen'. [Problema ustroistva pokrytii dorog v neftedobyvaiushchikh raionakh Tiumeni],
Motylev, IU.L., *Avtomobil'nye dorogi*, Sep. 1979, No.9, p.21-22, In Russian. 5 refs.
Pavements, Permafrost beneath roads, Construction materials, Roads.

34-1424
What kinds of pavements should be built in Yakutia. [Kakie konstruktsii dorozhnykh odezhd ustraivat' v IAkutii],
Sychov, V.P., *Avtomobil'nye dorogi*, Sep. 1979, No.9, p.22-24, In Russian.
Pavements, Permafrost beneath roads, Construction materials, Roads.

34-1425
Powerful bulldozer-scrapers. [Bul'dozery-rykhliteli povyshennoi moshchnosti],
Monastyrskii, O.V., *Avtomobil'nye dorogi*, Sep. 1979, No.9, p.29-30, In Russian.
Excavation, Earthwork, Frozen ground.

34-1426
Total gas content and surface elevation of polar ice sheets.
Raynaud, D., et al, *Nature*, Sep. 27, 1979, 281(5729), p.289-291, 10 refs.
Lebel, B.
Ice sheets, Ice cores.
Interpretation of stable isotope profiles from polar ice cores in terms of past climate requires a knowledge of the elevation at which the ice found at any depth was formed. Measurement of the total gas content of polar ice. We can give such information

if the volume of the pores in ice is known for the time they close off from the atmosphere at the ice formation site. Results are presented here that enable description of the variations in the total gas content of ice that has been formed in present-day conditions in Antarctica and Greenland for a wide range of temperature (-12 to -53C) and elevation (400 to 3,200 m). Using these results, the gas content method can now be applied with much greater confidence than before to indicate past elevation changes

34-1427
Local construction materials used for linings for the Baykal Amur railroad. [Oblitsovochnye materialy dlia stroek BAMa iz mestnogo syr'ia],
Troitskiĭ, V.V., et al, *Transportnoe stroitel'stvo*, Oct. 1979, No.10, p.22-23, In Russian.
Timchenko, I.P.
Construction materials, Linings, Plates, Masonry, Baykal Amur railroad.

34-1428
Performance of BTS-150 drills on construction sites of the Baykal Amur railroad. [Opyt ekspluatatsii burovykh mashin BTS-150 na BAMe],
Bardyshev, O.A., et al, *Transportnoe stroitel'stvo*, Oct. 1979, No.10, p.26-27, In Russian.
Permafrost beneath structures, Boreholes, Blasting, Drills, Baykal Amur railroad.

34-1429
Preliminary electric heating of concrete mixtures on construction sites. [Predvaritel'nyĭ elektrorazogrev betonnoĭ smesi na stroitel'noĭ ploshchadke],
Kalmykov, V.A., *Transportnoe stroitel'stvo*, Oct. 1979, No.10, p.50, In Russian.
Bridges, Winter concreting, Concrete heating, Baykal Amur railroad.

34-1430
Reliability of overhead power transmission lines in the Far North. [O nadezhnosti vozdushnykh liniĭ elektroperedachi v raĭonakh Kraĭnego Severa],
Selianin, A.I., et al, *Elektricheskie stantsii*, June 1979, No.6, p.64-65.
Liubotinskiĭ, A.I.
Power lines, Cold weather performance, Power line icing.

34-1431
Combined design technique in large panel construction. [Opyt kompleksnogo proektirovaniia krupnopanel'nogo stroitel'stva],
IAkushev, A.A., et al, *Beton i zhelezobeton*, Aug. 1979, No.8, p.7-8, In Russian.
Vasil'eva, T.A.
Large panel buildings, Prefabrication, Panels, Thermal insulation, Reinforced concretes, Design.

34-1432
Heating cables for electric warming of joints and situ-cast concrete structures. [Obogrev betona stykov i monolitnykh konstruktsiĭ greiushchimi provodami],
Astashev, V.M., et al, *Beton i zhelezobeton*, Sep. 1979, No.9, p.10-12, In Russian.
Vaksina, I.A., Gendin, V.IA., Tvorogov, A.I.
Grouting, Joints (Junctions), Concrete structures, Winter concreting, Concrete freezing, Electric heating.

34-1433
Testing concrete for frost resistance. [Ob ispytanii betona na morozostoĭkost'],
Sizov, V.P., *Beton i zhelezobeton*, Oct. 1979, No.10, p.34-35, In Russian. 4 refs.
Concrete structures, Concrete strength, Frost resistance, Low temperature tests, Laboratory techniques.

34-1434
Controlling frost resistance of concrete during production. [Kontrol' morozostoĭkosti betona v protsesse proizvodstva],
Voevoda, G.F., et al, *Beton i zhelezobeton*, Oct. 1979, No.10, p.35-37, In Russian. 2 refs.
Alimov, L.A., Voronin, V.V., Efimov, B.A.
Concrete structures, Prefabrication, Reinforced concretes, Concrete strength, Frost resistance, Low temperature tests.

34-1435
Consolidation of a thin cutoff wall of clay soils of liquid consistency.
Chernyĭ, I.P., et al, *Hydrotechnical construction*, May 1979, No.5, p.462-465, Translated from Gidrotekhnicheskoe stroitel'stvo. 2 refs.
Nedriga, V.P., Gladilin, A.M.
Hydraulic structures, Clay soils, Permeability, Grouting.

34-1436
Crystallization of a supercooled liquid in a sound field: steady-state dynamics of crystalline-phase nuclei in the liquid.
Bulanov, V.A., *Soviet physics. Acoustics*, May-June 1979, 25(3), p.202-207, Translated from Akusticheskiĭ zhurnal. 15 refs.
Supercooling, Sound waves, Ice nuclei, Crystal growth.

34-1437
Design of the Urengoy-Cheliabinsk pipeline. [Gazoprovod Urengoĭ-Cheliabinsk: opyt proektirovaniia],
Batozskiĭ, V.D., *Gazovaia promyshlennost'*, July 1979, No.7, p.9-10, In Russian.
Gas pipelines, Permafrost beneath structures, Design, Cost analysis.

34-1438
Origin of West Siberian soils containing thick light-color zones. [O genezise pochv s moshchnym osvetlennym gorizontom Zapadnoĭ Sibiri],
Zonn, S.V., *Akademiia nauk SSSR. Sibirskoe otdelenie. Izvestiia. Seriia biologicheskikh nauk*, Apr. 1979, 1(5), p.3-10, In Russian. 9 refs.
Cryogenic soils, Soil profiles, Podsol, Soil formation.

34-1439
Microbiological characteristics of cryogenic meadow-chernozem soils in the Eravnin Basin, the Buryat Autonomous Republic. [Mikrobiologicheskaia kharakteristika lugovo-chernozemnykh pochv (Eravninskaia kotlovina Buriatskoĭ ASSR)],
Nimaeva, S.Sh., et al, *Akademiia nauk SSSR. Sibirskoe otdelenie. Izvestiia. Seriia biologicheskikh nauk*, Apr. 1979, 1(5), p.10-17, In Russian with English summary. 4 refs.
Dugarov, V.I.
Cryogenic soils, Soil microbiology, Meadow soils, Chernozem, Active layer, Continuous permafrost.

34-1440
Microbiological studies of soils in the Magadan Region. [Mikrobiologicheskoe issledovanie pochv Magadanskoĭ oblasti],
Poliakov, V.A., *Akademiia nauk SSSR. Sibirskoe otdeleniie. Izvestiia. Seriia biologicheskikh nauk*, Dec. 1978, 3(15), p.3-10, In Russian with English summary. 17 refs.
Cryogenic soils, Soil microbiology, Podsol.

34-1441
Volume weight and thermophysical properties of soils. [Ob''emnyĭ ves i teplofizicheskie svoĭstva pochv],
Makarychev, S.V., et al, *Akademiia nauk SSSR. Sibirskoe otdelenie. Izvestiia. Seriia biologicheskikh nauk*, Dec. 1978, 3(15), p.10-12, In Russian with English summary. 6 refs.
Lunin, A.I.
Cryogenic soils, Thermal properties, Physical properties.

34-1442
Seasonal activity of invertase in drained peat soils. [Sezonnaia aktivnost' invertazy v osushennykh torfianykh pochvakh],
Efremova, T.T., *Akademiia nauk SSSR. Sibirskoe otdelenie. Izvestiia. Seriia biologicheskikh nauk*, Dec. 1978, 3(15), p.12-18, In Russian. 9 refs.
Organic soils, Swamps, Peat, Cryogenic soils, Soil chemistry, Soil temperature, Soil water.

34-1443
Lichen synusia at the upper limit of Anuy Plateau larch forests. [Lishaĭnikovye sinuzii v listvennichnike u verkhneĭ granitsy lesa v Aniuĭskom nagor'e],
Andreev, M.P., *Botanicheskiĭ zhurnal*, May 1979, 64(5), p.646-653, In Russian with English summary. 19 refs.
Cryogenic soils, Taiga, Forest tundra, Alpine tundra, Lichens, Plant ecology, Ecosystems.

34-1444
Lichen synusia in Alpine phytocenoses of the northern part of Altai-Sayan Mountains. [Rol' lishaĭnikovykh sinuziĭ v vysokogornykh fitotsenozakh severnoĭ chast Altae-Saianskoĭ gornoĭ oblasti],
Sedel'nikova, N.V., et al, *Botanicheskiĭ zhurnal*, May 1979, 64(5), p.671-679, In Russian. 17 refs.
Sedel'nikov, V.P.
Alpine landscapes.

34-1445
Willow shrub communities in the east of Chukotka Peninsula. [Soobshchestva kustarnikovykh iv na vostoke Chukotskogo poluostrova],
Sekretareva, N.A., *Botanicheskiĭ zhurnal*, July 1979, 64(7), p.957-970, In Russian with English summary. 22 refs.
Tundra, Classifications.

34-1446
Fodder lichen increment and distribution in the northern Yenisey Region. [Prirost kormovykh lishaĭnikov i ikh rasprostranenie na Eniseĭskom Severe],
Shchelkunova, R.P., *Botanicheskiĭ zhurnal*, Aug. 1979, 64(8), p.1111-1121, In Russian with English summary. 19 refs.
Tundra, USSR—Taymyr Peninsula.

34-1447
Fruiting of Arctic plants (Western Taymyr). [O plodonoshenii arkticheskikh rasteniĭ (Zapadnyĭ Taĭmyr)],
Khodachek, E.A., *Botanicheskiĭ zhurnal*, Aug. 1979, 64(8), p.1147-1158, In Russian. Refs. p.1157-1158.
Bibliographies, Arctic landscapes, Plant ecology, Plant physiology, Ecosystems, USSR—Taymyr Peninsula.

34-1448
Human activities effect on the Pinus sylvestris (Pinaceae) increment in the Bratsk Region. [Vliianie antropogennykh vozdeĭstviĭ na prirost sosny obyknovennoĭ Pinus sylvestris (Pinaceae) v raĭone g. Bratska],
Laĭrand, N.I., et al, *Botanicheskiĭ zhurnal*, Aug. 1979, 64(8), p.1187-1195, In Russian. 2 refs.
Lovelius, N.V., IAtsenko-Khmelevskiĭ, A.A.
Forest soils, Cryogenic soils, Human factors, Soil pollution, Water pollution, Forest land, Trees (plants).

34-1449
Drainage effect on algoflora of mesotrophic bogs. [Vliianie osusheniia na al'gofloru mezotrofnykh bolot],
Antipina, G.S., *Botanicheskiĭ zhurnal*, Sep. 1979, 64(9), p.1285-1295, In Russian with English summary. 25 refs.
Swamps, Peat, Soil microbiology, Algae.

34-1450
Ecologic-cenotic peculiarities of meadow-steppes cryophytes in Central Transbaikal. [O nekotorykh ekologo-tsenoticheskikh osobennostiakh kriofitnykh lugo-stepeĭ tsentral'nogo Zabaĭkal'ia],
Dulepova, B.I., et al, *Botanicheskiĭ zhurnal*, Sep. 1979, 64(9), p.1332-1340, In Russian. 14 refs.
Umanskaia, N.V.
Cryogenic soils, Meadow soils, Steppes, Ecosystems, Plant ecology.

34-1451
Slope recession in the Onefour Badlands, Alberta, Canada: an initial appraisal of contrasted moisture regimes.
Barendregt, R.W., et al, *Canadian journal of earth sciences*, Feb. 1979, 16(2), p.224-229, 10 refs.
Ongley, E.D.
Slope processes, Soil erosion, Seasonal freeze thaw, Snowmelt, Periglacial processes, Soil water, Climatic factors, Glacial deposits.

34-1452
Facies of supraglacial sedimentation on Icelandic and alpine temperate glaciers.
Eyles, N., *Canadian journal of earth sciences*, July 1979, 16(7), p.1341-1361, Refs. p.1358-1361.
Glacial deposits, Moraines, Sedimentation, Ice melting, Glacier surfaces.

34-1453
Growth and decay of palsas and peat plateaus in the Macmillan Pass—Tsichu River area, Northwest Territories, Canada.
Kershaw, G.P., et al, *Canadian journal of earth sciences*, July 1979, 16(7), p.1362-1373, 23 refs.
Gill, D.
Discontinuous permafrost, Pingos, Hummocks, Growth, Frost mounds, Peat, Decomposition.

34-1454
Delta 18-O variations in snow on the Devon Island ice cap, Northwest territories, Canada.
Koerner, R., et al, *Canadian journal of earth sciences*, July 1979, 16(7), p.1419-1427, 27 refs.
Russell, R.D.
Snow surveys, Isotope analysis, Snow accumulation, Oxygen isotopes, Meteorological factors, Glacier mass balance.

34-1455
Isotopic analysis of subglacial concretions of the Laurentide ice sheet and oxygen-18 content of the ice. [Analyse isotopique de concrétions sous-glaciaires de l'inlandsis laurentidien et teneur en oxygène 18 de la glace],
Hillaire-Marcel, C., et al, *Canadian journal of earth sciences*, July 1979, 16(7), p.1494-1498, In French with English summary. 17 refs.
Soucy, J.M., Cailleux, A.
Glacial deposits, Ice composition, Isotope analysis, Sediments, Ice sheets.

34-1456
Study of the effects of pore-water salinity on some physical properties of sedimentary rocks at permafrost temperatures.
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King, M.S.
Frozen rocks, Porous materials, Saturation, Elastic properties, Electrical resistivity, Temperature effects, Ice salinity, Freeze thaw tests.

34-1457
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Banner, J.A.
Frost mounds, Growth, Stereophotography, Pingos, Photography.

34-1458
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Karlén, W., *Geografiska annaler. Series A Physical geography,* 1979, 61A(1-2), p.11-28, 50 refs.
Glacier oscillation, Moraines, Radioactive age determination, Lichens.

34-1459
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Moraines, Glacier oscillation, Models.

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Ice thickness and stratigraphy at nearshore locations on the Great Lakes (metric units).
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Lake ice, Ice cover thickness, Ice structure, Data processing.

34-1461
Relationship of glacier ice and rock glacier at Grubengletscher, Kanton Wallis, Switzerland.
Whalley, W.B., *Geografiska annaler. Series A Physical geography,* 1979, 61A(1-2), p.49-61, 25 refs.
Glacier ice, Rock glaciers, Glacial deposits, Glacier flow.

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Spring runoff forecasts from snow assessments in the Malmagen area at 62N in Sweden.
Zakrisson, K., *Geografiska annaler. Series A Physical geography,* 1979, 61A(1-2), p.63-66, 5 refs.
Snow cover, Runoff forecasting, Sweden.

34-1463
Proglacial aggradation and changes in braided channel patterns during a period of glacial advance: an alpine example.
Maizels, J.K., *Geografiska annaler. Series A Physical geography,* 1979, 61A91-2), p.87-101, 47 refs.
Glacier oscillation, Glacier mass balance, Glacial deposits, Streams, Patterned ground.

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34-1587
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Technical Seminar on Alaskan Beaufort Sea Gravel Island Design, Houston, Texas, Exxon Production Research Co., Oct. 1979, 9 papers, Refs. passim. For individual papers see 34-1588 through 34-1596.
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34-1588
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Artificial islands, Gravel, Oceanographic surveys, Design criteria, Offshore landforms.

34-1590
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34-1594
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Templeton, J.S., III, Technical Seminar on Alaskan Beaufort Sea Gravel Island Design, Houston, Texas, Production Research Co., Oct. 1979, 13p. + 20 slides, 9 refs.
Artificial islands, Trenching, Ice loads, Ice pressure, Countermeasures, Offshore landforms, Gravel, Monitors.

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Production islands.
Jahns, H.O., Technical Seminar on Alaskan Beaufort Sea Gravel Island Design, Houston, Texas, Production Research Co., Oct. 1979, 16p. + 23 slides, 5 refs.
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Kovacs, A., *U.S. Army Cold Regions Research and Engineering Laboratory,* July 1979, SR 79-21, 7p., ADA-078 692, 9 refs.
Icebergs, Classifications.
Icebergs are discussed and categorized according to their size, shape, composition and color. A general overview of iceberg-producing areas in the Arctic and Antarctic is given, and their drift and deterioration are discussed. (Auth.)

34-1598
Test of snow fortifications.
Farrell, D.R., *U.S. Army Cold Regions Research and Engineering Laboratory,* Oct. 1979, SR 79-33, 15p., ADA-078 742, 16 refs.
Penetration tests, Military engineering, Snow (construction material), Fortifications, Small arms ammunition.
A field study was conducted to 1) more accurately define the degree of protection offered by simple snow fortification and 2) evaluate the effort required by infantry troops to build such fortifications when only basic tools are available. A seven-man infantry squad, equipped with standard issue snow shovels and an arctic sled (Akhio), constructed several simple snow structures. Construction was made more difficult by the imposition of a camouflage discipline requirement. When completed, three positions were subjected to M16A1 rifle fire while the infantry squad executed a simulated tactical assault. A fourth and much larger position was tested with simulated covering fire from a M2HB 50-caliber machine gun. None of the 5.56-mm bullets fired by the squad from ranges of 200 m to as close as 10 m managed to penetrate the 1.8-m-thick snow embankments. The 12.7-mm-diameter bullets fired from the M2HB at a range of 250 m were all stopped by 3.0 m of packed snow. The camouflage considerations and the shallow snow conditions increased the construction time for the three small emplacements by almost a factor of four, and for the larger emplacement by almost a factor of three. But the squad still handled a volume of packed snow that was equal to 3.7 times the volume of unfrozen soil that could be handled with the same amount of effort, according to field manual estimates. Under frozen soil conditions the advantages of using snow would be significantly greater.

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Prototype overland flow test data: June 1977-May 1978.
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Waste treatment, Water treatment, Irrigation, Soil chemistry, Ion exchange, Meteorological data.
A prototype overland flow land treatment system was operated at Hanover, New Hampshire, over a one-year cycle from June 1977 to May 1978. The individual data points collected over this period for water quantity and quality are presented, as well as plant yields and nutrient uptake. The soil chemical and physical parameters measured are also presented along with a table of initial site characteristics. The meteorological measurements obtained in support of this effort are included to complete the data base.

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Icebreakers, Ships, Offshore drilling.

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Ice shelves, Ice sheets, Ice composition, Isotope analysis.
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High pressure ice, Phase transformations, Ice physics, Models.

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Ice density, Infrared spectroscopy, Light scattering.

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Ice physics, Spectroscopy, Vibration, Ice structure.

34-1607
Ice-dammed lakes: a critical review of their nature and behaviour.
Blachut, S.P., et al, McMaster University. Department of Geography. Discussion paper No.6, Hamilton, Ont., McMaster University, 1976, 90p., Refs. p.78-90.
Ballantyne, C.K.
Lake ice, Ice dams, Physical properties, Hydrology, Ice formation, Water temperature, Sedimentation, Drainange, Classifications.

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Charged dislocation in ice: 1. Existence and charge density measurement by X-ray topography.
Itagaki, K., *U.S. Army Cold Regions Research and Engineering Laboratory*, Nov. 1979, CR 79-25, 12p., ADA-078 775, 23 refs.
Ice electrical properties, Electric charge, Dislocations (materials), X ray analysis, Ice crystal structure.
The motion of dislocations in single crystal ice under an electric field was observed by using X-ray topographic methods. Electric charge density on these dislocations was deduced from the amplitude and length of the dislocation segment under the known AC electrical field. In linear charge density, considerable variation is possible, depending on the effective field acting on the dislocation lines.

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Ice mechanics, Analysis (mathematics).
Some Bessel function identities found by solving problems of the deflection of a floating ice plate by two different methods are rigorously proved. The master formulas from which all the identities are derived are in a Fourier reciprocal relationship, connecting a Hankel function to an exponential function. Many new formulas can be derived from the master formulas. The analytical method presented here now opens the way to study a hitherto impossible type of problem-the deflection of floating elastic plates of various shapes and boundary conditions.

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Icebergs, South Georgia.
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Lake ice, Ice formation, Ice breakup, Meteorological data, Periodic variations.
A 19-yr record of the annual closing and opening dates of operation of the Lake Champlain ferry at Grand Isle, Vermont, which are controlled by the lake's ice cover, was made available to CRREL. These navigation records accurately approximated the freeze-over and breakup dates for the ferry crossing area between Gordon Landing, Vermont, and Cumberland Head, New York. When compared statistically with water temperature and climatological data for the same years at nearby Lake Champlain locations, the dates allowed accurate predictions of ice formation. From nearby air temperature records, cumulative freezing degree-day (C) curves were plotted for each year of record, and ice formation dates and standard deviations were predicted with considerable accuracy. Several methods of predicting ice formation on Lake Champlain were attempted. The most accurate approach used a combination of water temperatures and freezing degree-days. The influence of wind speed on ice cover formation and prediction are also discussed in the report.

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In an analysis of NO3 in an antarctic ice core we have found four spikes of high concentration, three of which occur at depths which correspond roughly to the dates of known galactic supernovae (SN). The production of the observed NO3 peaks by the hard X rays generated by a SN outburst (particularly Type I) does not seem inconceivable at least from the point of view of energy requirements and current SN models. We predict that the bright SN of 1006 will be 'observed' about 15 m beyond the end of the current core. If this is true, our identification of these spikes with SN will have important consequences for the theory of SN, atmospheric chemistry and transport, and even the dating of ice cores. (Auth.)

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MacAyeal, D.R., et al, *Nature*, Dec 13 1979, 282(5740), p.703-705, 17 refs.
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The ice sheet in West Antarctica is grounded on a sub-sea level basin in the antarctic continental shelf. At the seaward margins, where ice thicknesses are reduced sufficiently to attain neutral buoyancy, floating ice shelves form. The two largest are the Ross and Ronne ice shelves. Because the depth of the continental shelf increases towards the center of the West Antarctic ice sheet, ice discharge could accelerate irreversibly until the grounded portion of the ice sheet had completely disappeared. The resistance to ice discharge provided by the ice shelves is the major factor preventing such a collapse. Geological evidence indicates that the extent of grounded ice in the West Antarctic has fluctuated widely during the Pleistocene, and complete removal of the ice sheet may have occurred during the Sangamon interglacial following a climatic warming, which was probably associated with a retreat of the ice-shelf seaward margins. One of the most active ice streams draining West Antarctica flows into the southeast corner of the Ross Ice Shelf. Surface observations in this area indicate that, either the ice shelf is thickening, or that there is appreciable melting from beneath ice shelf that is >500 km from the open sea. Such melting would strongly influence temperatures within the ice shelf, and here a temperature-depth profile from the ice shelf is used to estimate the basal regime. It is concluded that, for much of the southeast corner, basal freezing/melting rates have been near zero for the past few hundred years. This implies that, within this region, the ice shelf is thickening at approx 0.3 m/yr. (Auth.)

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Geocryology, Frost weathering, Rock streams, Alpine landscapes, Origin.

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Doake, C.S.M., Horsfall, J.A.C.
Ice shelves, Ice surface, Measuring instruments, Ice sheets.
A new design of tiltmeter has been used to measure the tidal bending of the Ronne Ice Shelf, Antarctica. By this means the point at which the ice sheet leaves the land and starts floating on the sea has been defined to within 600m. Monitoring this position in future should give an indication of the state of balance of the West Antarctic ice sheet, often considered to be unstable even if not actually disintegrating. The hydrostatic level meter is light and simple and can operate unattended while recording continuously for periods of several weeks. Observations at eight different sites on Rutford Ice Stream gave tidal records on ice more than 1,700 m thick and at points up to 600 km from the nearest open sea. (Auth.)

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Utilities, Buildings, Cold weather construction, Health, Snow loads, Snowdrifts, Ice loads, Permafrost beneath structures, Mining, Foundations.
Participants from Denmark, Canada, Norway, Sweden, Iceland, Finland, United States, and the USSR met in Godthab in August, 1978 to address three major topics: Physical planning and layout of settlements; Programming, design and construction of engineering infrastructure facilities; and Programming, design and construction of housing and related social services facilities.

34-1768
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34-1769
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Placer mining, Pits (excavations), Permafrost, Blasting, Economic analysis.

34-1770
Special geomorphologic map for studying permafrost. [Spetsializirovannaia geomorfologicheskaia karta dlia izucheniia geokriologicheskikh uslovii],
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Geocryology, Surveys, Mapping, Swamps, Permafrost distribution, Engineering geology.

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34-1772
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Frozen rock temperature, Frost protection, Snow cover effect, Excavation.

34-1774
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Vegetation, Frost resistance, Acclimatization, Arctic landscapes, Polar regions.

34-1777
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Snow cover effect, Forest canopy, Vegetation factors, Photography.

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Snow cover distribution, Remote sensing, Avalanche formation, Snow depth, Photogrammetric surveys, Mapping.

34-1783
Distribution and structure of snow cover under forest trees and full-grown forest. [Verteilung und Struktur der Schneedecke unter Waldbäumen und im Hochwald],
In der Gand, H., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.97-119, In German with English summary. 5 refs.
Snow cover distribution, Snow cover structure, Avalanche formation, Forest land, Snowfall, Forest canopy, Mountains.

34-1784
Influence of snow cover on physiological processes in forest plants. [Der Einfluss der Schneedecke auf die Lebensvorgänge von Forstpflanzen],
Tranquillini, W., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.123-137, In German with English summary. 14 refs.
Snow cover effect, Plant physiology, Trees (plants), Growth, Microclimatology, Photosynthesis, Frost resistance, Forest line.

34-1785
Effect of fertilization on winter drying of Scots pine.
Kurkela, T., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.139-143, 9 refs.
Forest canopy, Drying, Growth, Plant ecology, Cold weather tests, Snow cover effect, Peat, Fertilizers.

34-1786
Distribution of snow and damages by snow in an afforestation area in the subalpine zone at the "Sonnberg" near Haggen/Tyrol.
Stern, R., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.145-154, In English with German summary. 4 refs.
Snow cover effect, Trees (plants), Damage, Deformation, Snow depth, Snow mechanics, Mountains.

34-1787
Snow forces on forest plants.
Salm, B., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.157-181, In English with German summary. 13 refs.
Snow loads, Trees (plants), Deformation, Snow mechanics, Protective vegetation, Avalanche formation, Snow cover effect.

34-1788
Bending of young larch stems due to snow pressure. [Über das Abbiegen von Stämmen junger Lärchen durch Schneedruck],
Frey, W., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.183-203, In German with English summary. 3 refs.
Snow loads, Trees (plants), Deformation, Snow cover effect, Snow depth, Snow mechanics.

34-1789
Deformation and damage to forest plants by snow forces.
Wakabayashi, R., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.205-209, 22 refs.
Snow loads, Trees (plants), Deformation, Damage, Snow cover effect, Slope orientation, Snow accumulation.

34-1790
Assessment and analysis of snow breakage in fir trees in the Pfalz Forest, 1968 and 1975. [Erfassung und Analyse des Kiefernschneebruchs 1968 und 1975 im Pfälzer Wald],
Lessel, A., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.211-215, In German with English summary.
Trees (plants), Damage, Avalanche formation, Snow loads, Snow cover effect.

34-1791
Forest and avalanches. [Wald und Lawinen],
De Quervain, M., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.219-239, In German with English summary. 2 refs.
Avalanche formation, Forest land, Trees (plants), Damage, Deformation, Slope orientation, Protection, Models.

34-1792
Avalanche frequency and risk estimation in forest sites.
Föhn, P.M.B., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.241-254, In English with German summary. 10 refs.
Avalanche formation, Trees (plants), Damage, Statistical analysis, Revegetation, Forestry.

34-1793
Some promising afforestation tests based on the laying out of logs on avalanche sites.
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Avalanche formation, Countermeasures, Latticed structures, Revegetation.

34-1794
Aims and preliminary results of French protective reforestation at the tree line on abandoned alpine pastures (Southern French Alps). [Objectifs et premiers résultats des expériences françaises de reboisement de protection à la limite de la forêt sur les alpages délaissés (Alpes françaises du Sud)],
Mullenbach, P., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.261-278, In French with German and English summaries.
Forestry, Revegetation, Protective vegetation, Alpine landscapes, Topographic effects, Climatic factors, Slope orientation, Mountain soils, Forest lines.

34-1795
Ecosystem of avalanche protection forests. [Ökosystem Lawinenschutzwald],
Mayer, H., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.281-299, In German with English summary. 23 refs.
Avalanche formation, Countermeasures, Forest ecosystems, Protective vegetation, Forestry.

34-1796
Development and structure of pine forests in Slovakia and their effectiveness as avalanche protection. [Entwicklung und Struktur der Fichtennaturwälder in der Slowakei sowie ihre Funktionsfähigkeit als Lawinenschutz].
Korpel', Š., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.301-317, In German with English Summary. 14 refs.
Forestry, Protective vegetation, Avalanche formation, Countermeasures, Revegetation.

34-1797
Present state of mountain forests, consequences for their avalanche protection function, silvicultural measures.
Ott, E., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.321-330, 15 refs.
Forestry, Protective vegetation, Avalanche formation, Countermeasures, Revegetation, Mountains.

34-1798
Silvicultural planning in avalanching forests.
Fiebiger, G., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.331-348, In English with German summary. 11 refs.
Forestry, Protective vegetation, Avalanche formation, Countermeasures, Forest ecosystems, Revegetation, Avalanche mechanics.

34-1799
Copeland cut test ice boom design criteria and data analysis, winter, 1974-75; Final report.
Uzuner, M.S., Columbia, Md., ARCTEC, Inc., Apr. 1975, 2 vols., 16 refs.
Ice booms, Ice navigation, Ice cover thickness, Ice cover strength, Ice growth, River ice, Loads (forces), Channels (waterways), Hydraulics, Design criteria.

34-1800
Research plan for Arctic ship powering and development.
Voelker, R.P., *U.S. Maritime Administration. Report*, Oct 24, 1977, MA-RD-940-78014, 49p., PB-285 871, 20 refs.
Economic development, Ships, Sea ice, Ice navigation, Research projects.

34-1801
Vibrational response and structural integrity of deep water structures.
Doelling, N., *Massachusetts Institute of Technology. Opportunity brief*, July 1978, MIT-SG-78-10, 19p., PB-286 846, Includes as appendix: Detection of structural failure on fixed platforms by measurement of dynamic response, by J.K. Vandiver. 13 refs.
Offshore structures, Vibration, Structural changes.

34-1802
Laboratory examination of the ice-nucleating ability of AgI-aerosol using a low pressure filter processor.
Young, K.C., *U.S. National Oceanic and Atmospheric Administration. Contractor report*, Apr. 1978, NOAA-78082904, 20p., PB-286 891, 4 refs.
Aerosols, Nucleating agents, Ice nuclei, Silver iodide.

34-1803
Water/wastewater evaluation for an Arctic Alaskan industrial camp.
Tilsworth, T., et al, *Alaska. University. Institute of Water Resources. Report*, Apr. 1973, IWR-37, 174p., Body of report is Damron's thesis for the M.Sc. degree. 55 refs.
Damron, F.J.
Water supply, Waste disposal, Waste treatment, United States—Alaska— North Slope.

34-1804
Study of trace elements in waters of two Alaskan reservoir sites.
Smith, D.W., et al, *Alaska. University. Institute of Water Resources. Report*, Jan. 1975, IWR-57, 81p., Refs. p.75-81.
Hays, M.J.
Water chemistry, Minerals, Reservoirs.

34-1805
Microbic associations and their functions in West Siberian soils. [Mikrobnye assotsiatsii i ikh funktsionirovanie v pochvakh Zapadnoĭ Sibiri].
Klevenskaia, I.L., ed, Novosibirsk, Nauka, 1979, 286p., In Russian. For selected papers see 34-1806 through 34-1813. Refs. passim.
Cryogenic soils, Taiga, Alpine landscapes, Alpine tundra, Forest tundra, Soil microbiology, Swamps, Meadow soils, Steppes, Soil chemistry, Thermal regime.

34-1806
Microbiological processes in southern taiga soils of West Siberia. [Mikrobiologicheskie protsessy v pochvakh iuzhnoĭ taigi Zapadnoĭ Sibiri].
Naplekova, N.N., et al, Mikrobnye assotsiatsii i ikh funktsionirovanie v pochvakh Zapadnoĭ Sibiri (Microbic associations and their functions in the West Siberia soils) edited by I.L. Klevenskaia, Novosibirsk, Nauka, 1979, p.3-21, In Russian. 17 refs.
Gadzhiev, I.M., Klenov, B.M.
Taiga, Landscape types, Soil microbiology, Cryogenic soils, Podsol, Soil chemistry.

34-1807
Microbic associations in soils of biogeocenoses of the Baraba Plain. [Mikrobnye assotsiatsii pochv riada biogeotsenozov Barabinskoĭ nizmennosti].
Klevenskaia, I.L., et al, Mikrobnye assotsiatsii i ikh funktsionirovanie v pochvakh Zapadnoĭ Sibiri (Microbic associations and their functions in the West Siberia soils) edited by I.L. Klevenskaia, Novosibirsk, Nauka, 1979, p.22-60, In Russian. 50 refs.
Gantimurova, N.I.
Cryogenic soils, Soil microbiology, Landscape types Bibliographies, Swamps, Steppes, Meadow soils, Soil temperature.

34-1808
Nitrogen compound transformations in some Baraba Plain soils. [Protsessy transformatsii soedineniĭ azota v riade pochv Barabinskoĭ nizmennosti].
Gantimurova, N.I., Mikrobnye assotsiatsii i ikh funktsionirovanie v pochvakh Zapadnoĭ Sibiri (Microbic associations and their functions in the West Siberia soils) edited by I.L. Klevenskaia, Novosibirsk, Nauka, 1979, p.60-86, In Russian. 9 refs.
Cryogenic soils, Soil microbiology, Soil chemistry, Nutrient cycle, Soil profiles.

34-1809
Biochemical productivity in soils of some biogeocenoses in the Baraba Plain, subject to continuous cultivation. [Biokhimicheskaia produktivnost' pochv riada biogeotsenozov Barabinskoĭ nizmennosti v usloviiakh nepreryvnogo kul'tivirovaniia].
Gantimurova, N.I., Mikrobnye assotsiatsii i ikh funktsionirovanie v pochvakh Zapadnoĭ Sibiri (Microbic associations and their functions in the West Siberia soils) edited by I.L. Klevenskaia, Novosibirsk, Nauka, 1979, p.87-107, In Russian. 6 refs.
Cryogenic soils, Thermal regime, Frost penetration, Soil water migration, Soil microbiology, Soil chemistry.

34-1810
Microbiology of Altai Mountain soils. [Mikrobiologiia pochv gornogo Altaia].
Klevenskaia, I.L., et al, Mikrobnye assotsiatsii i ikh funktsionirovanie v pochvakh Zapadnoĭ Sibiri (Microbic associations and their functions in the West Siberia soils) edited by I.L. Klevenskaia, Novosibirsk, Nauka, 1979, p.107-153, In Russian. 20 refs.
Khmelev, V.A.
Alpine landscapes, Soil microbiology, Alpine tundra, Forest tundra, Cryogenic soils, USSR—Altai Mountains.

34-1811
Effect of development on the biologic activity of chernozems and chernozem-meadow alpine soils of the Altais. [Vliianie osvoeniia na biologicheskuiu aktivnost' chernozemov i chernozemno-lugovykh pochv gornogo Altaia].
Gauert, V.I., Mikrobnye assotsiatsii i ikh funktsionirovanie v pochvakh Zapadnoĭ Sibiri (Microbic associations and their functions in the West Siberia soils) edited by I.L. Klevenskaia, Novosibirsk, Nauka, 1979, p.154-165, In Russian. 14 refs.
Alpine landscapes, Cryogenic soils, Meadow soils, Soil microbiology, USSR—Altai Mountains.

34-1812
Temperature and humidity effect on biological nitrogen fixation in leached chernozem with different organic additives. [Deĭstvie temperatury i vlazhnosti na protsess biologicheskoĭ fiksatsii azota v vyshchelochennom chernozeme s razlichnymi organicheskimi dobavkami].
Mozzherin, N.M., Mikrobnye assotsiatsii i ikh funktsionirovanie v pochvakh Zapadnoĭ Sibiri (Microbic associations and their functions in the West Siberia soils) edited by I.L. Klevenskaia, Novosibirsk, Nauka, 1979, p.174-178, In Russian. 3 refs.
Cryogenic soils, Soil microbiology, Soil chemistry, Nutrient cycle, Chernozem.

34-1813
Effect of fertilizers on the microflora of gray forest soils in the Altai Mountains. [Vliianie udobreniĭ na mikrofloru serykh lesnykh pochv gornogo Altaia].
Vyblov, N.F., Mikrobnye assotsiatsii i ikh funktsionirovanie v pochvakh Zapadnoĭ Sibiri (Microbic associations and their functions in the West Siberia soils) edited by I.L. Klevenskaia, Novosibirsk, Nauka, 1979, p.178-183, In Russian. 4 refs.
Alpine landscapes, Cryogenic soils, Soil microbiology, Forest soils, Soil chemistry, USSR—Altai Mountains.

34-1814
General and applied climatology. [Obshchaia i prikladnaia klimatologiia].
Kobysheva, N.V., ed, *Leningrad. Glavnaia geofizicheskaia observatoriia. Trudy*, 1979, Vol.245, 104p., In Russian. For selected papers see 34-1815 through 34-1822. Refs. passim.
Kopanev, I.D., ed.
Icing, Ice accretion, Mapping, Ice loads, Building codes, Hydraulic structures, Design, Snow surveys, Snow depth, Snow accumulation, Snow cover distribution.

34-1815
Methods of determining and presenting climatological data for structural design. [O metodakh opredeleniia i predstavleniia klimaticheskikh dannykh dlia stroitel'nogo proektirovaniia].
Kobysheva, N.V., et al, *Leningrad. Glavnaia geofizicheskaia observatoriia. Trudy*, 1979, Vol.425, p.3-8, In Russian. 8 refs.
Kopanev, I.D., Shver, Ts.A.
Meteorological data, Data processing, Construction, Design, Climatology.

34-1816
Using climatic data in structural design. [Ispol'zovanie klimatologicheskoĭ informatsii v stroitel'nom proektirovanii].
Kobysheva, N.V., et al, *Leningrad. Glavnaia geofizicheskaia observatoriia. Trudy*, 1979, Vol.425, p.9-16, In Russian. 4 refs.
Kukhtina, L.P.
Meteorological data, Data processing, Construction, Design, Buildings, Heat loss, Microclimatology, Wind factors.

34-1817
Building code requirements concerning ice loads on hydraulic structures. [O trebovaniiakh SNiPa po opredeleniiu ledovykh nagruzok na gidrotekhnicheskie sooruzheniia].
Kukhtina, L.P., *Leningrad. Glavnaia geofizicheskaia observatoriia. Trudy*, 1979, Vol.425, p.17-20, In Russian. 5 refs.
Hydraulic structures, Ice loads, Building codes.

34-1818
Daily snow accumulation in Belorussia. [Sutochnye snegonakopleniia na territorii Belorussii].
Volobueva, G.V., *Leningrad. Glavnaia geofizicheskaia observatoriia. Trudy*, 1979, Vol.425, p.58-66, In Russian. 10 refs.
Snow surveys, Snow accumulation, Snow cover distribution, Snow depth, Meteorological charts.

34-1819
Calculating the icing of tall structures from indirect data. [K raschetu parametrov obledeneniia vysotnykh sooruzheniĭ po kosvennym dannym].
Glukhov, V.G., et al, *Leningrad. Glavnaia geofizicheskaia observatoriia. Trudy*, 1979, Vol.425, p.67-73, In Russian. 10 refs.
Mytarev, M.N.
Ice loads, Meteorological data, Weather forecasting, Icing.

34-1820
Mass and density of ice-hoarfrost deposits under different physiographic conditions. [Plotnost' i massa gololedno-izmorozevykh otlozheniĭ v razlichnykh fiziko-geograficheskikh usloviiakh].
Zakharov, A.G., et al, *Leningrad. Glavnaia geofizicheskaia observatoriia. Trudy*, 1979, Vol.425, p.74-80, In Russian. 11 refs.
Sokolova, S.N.
Icing, Ice accretion, Hoarfrost, Ice density, Topographic effects.

34-1821
Length of the ice-hoarfrost accretion period. [O prodolzhitel'nosti narastaniia gololedno-izmorozevykh otlozheniĭ].
Guliaev, IU.N., *Leningrad. Glavnaia geofizicheskaia observatoriia. Trudy*, 1979, Vol.425, p.81-85, In Russian. 7 refs.
Hoarfrost, Icing, Ice accretion, Topographic factors.

34-1822
Regionalization of the USSR according to icing. [Raionirovanie territorii SSSR po otlozheniiam gololeda].
Rudneva, A.V., *Leningrad. Glavnaia geofizicheskaia observatoriia. Trudy*, 1979, Vol.425, p.86-91, In Russian. 12 refs.
Icing, Ice accretion, Icing rate, Ice cover thickness, Mapping, Meteorological charts, Ice loads.

34-1823
Relict cryogenic microrelief of the southern Bryansk Region. [Reliktovyi kriogennyi mikrorel'ef iuzhnoi chasti Brianskoi oblasti].
Porozhniakova, O.M., *Geomorfologiia*, July-Sep. 1979, No.3, p.86-93, In Russian with English summary. 11 refs.
Geocryology, Polygonal topography, Frost shattering, Patterned ground.

34-1824
Variations in the ice surface height along the Mirnyy-100 km profile. [Izmenenie vysoty poverkhnosti l'da na profile Mirnyi-100-i kilometr].
Meier, S., *Sovetskaia antarkticheskaia ekspeditsiia. Informatsionnyi biulleten'*, 1979, No.99, p.17-24, In Russian. 17 refs.
Ice sheets, Mass balance, Glacier mass balance, Antarctica—Mirnyy Station.
Thickness studies were done in 1962 and 1965, and long-term accumulation records were kept along a 100-km profile near Mirnyy. In spite of rather large measurement errors, tendencies in ice sheet thickness are apparent and can be compared with observations done at other continental stations. A positive mass balance occurs up to the 5-km point (probably because the ice is held in crags). After that, the ice surface gradually drops off. Global climate accounts for this phenomenon, while local factors resulting from flow mechanics account for maximum drop of 2m/yr in the Helen Glacier area. South of the Helen Glacier basin, the surface appears to be almost in equilibrium.

34-1825
Results of temperature measurements in Vostok boreholes. [Rezul'taty termometrii v skvazhinakh na stantsii Vostok].
Vostretsov, R.N., et al, *Sovetskaia antarkticheskaia ekspeditsiia. Informatsionnyi biulleten'*, 1979, No.99, p.25-31, In Russian. 7 refs.
Dmitriev, D.N.
Temperature measurement, Thermal drills, Ice temperature, Antarctica—Vostok Station.
Measurements down to 900 m were done to determine ice cover temperature and also to assess the effect of thermal drills on ice temperature. The sharpest decline in temperature occurs between 20 and 60 m in depth. Borehole temperature recovers within 150-200 days after drilling. Accuracy and reliability of ice temperature determinations depend on the state of the hole, its integrity and its stability. Readings done both at the time of drilling and 327 days later are in good agreement with theoretical data; at a low temperature gradient natural air convection introduces very little distortion into temperatures in deep boreholes.

34-1826
Determining horizontal ice flow gradients in the Vostok Station area down to 800 m. [Opredelenie gradientov gorizontal'noi skorosti techeniia l'da v raione stantsii Vostok do glubiny 800 m].
Dmitriev, D.N., et al, *Sovetskaia antarkticheskaia ekspeditsiia. Informatsionnyi biulleten'*, 1979, No.99, p.32-34, In Russian. 3 refs.
Vostretsov, R.N.
Ice sheets, Thermal drills, Flow measurement, Glacier flow, Antarctica—Vostok Station.
Beginning in 1973, study of the ice sheet movement was carried out in a 905.4-m borehole near Vostok Station. No changes in angle of inclination, measured every 8-10 months, were noted. The drilling method—an electric thermal drill on a cable—produced a virtually vertical hole. These findings support previous conclusions that the ice cover around Vostok is practically stationary.

34-1827
Glacier echo sounding studies around Molodezhnaya. [Raboty po radiolokatsionnomu zondirovaniiu lednikov v raione Molodezhnoi].
Trepov, G.V., et al, *Sovetskaia antarkticheskaia ekspeditsiia. Informatsionnyi biulleten'*, 1979, No.99, p.35-38, In Russian. 1 ref.
Sheremet'ev, A.N., Stepanov, V.K.
Echo sounding, Glacier thickness, Antarctica—Molodezhnaya Station, Antarctica—Hays Glacier, Antarctica—Campbell Glacier.
A reconnaissance study of glaciers in the Molodezhnaya Station area was made in the summer of 1975-76 to measure ice thickness by echo sounding and to set up flow measurement and control point networks. A network was laid out to allow sounding determinations of flow rate to be done at 19 points. Data from echo sounding work are compared with flow rate findings obtained by geodesic methods.

34-1828
Connections in the Gamburtsev and Vernadskiy Subglacial Mountains. [O sviazi podlednykh gor Gamburtseva i Vernadskogo].
Koblents, IA.P., *Sovetskaia antarkticheskaia ekspeditsiia. Informatsionnyi biulleten'*, 1979, No.99, p.39-48, In Russian. 9 refs.
Ice sheets, Ice cover thickness, Glacier thickness, Antarctica—Enderby Land.
The present work is an attempt to establish relationships among the gravimetric charts of Enderby Land and the South Pole area and, by analyzing the gravity anomalies, to outline subglacial relief along 40-42°E. Echo-sounding data from Enderby Land will also make it possible to chart the subglacial topography north and south from the Yamato Mountains and to study the Gamburtsev Subglacial Mountains. Subglacial relief data from gravimetry readings are set out in charts. Comparing these findings with echo sounding data gathered by British-American researchers shows that the Gamburtsev Subglacial Mountains are better described as highlands, which cover the central part of East Antarctica between Komsomolskaya and the Pole of Inaccessibility. They extend about 1000 km and have no direct connection with the Vernadskii Mountains.

34-1829
Temperature regime of the antarctic fast ice. [Temperaturnyi rezhim antarkticheskogo pripaia].
Nazintsev, IU.L., *Sovetskaia antarkticheskaia ekspeditsiia. Informatsionnyi biulleten'*, 1979, No.99, p.63-68, In Russian. 4 refs.
Fast ice, Ice shelves.
Ice condition reports from ships in the Weddell Sea in 1975/76 are summarized and compared with satellite records. Troublesome features of Weddell Sea ice navigation are pointed out; leads must be used with great caution as they often lie parallel and do not connect or reach open water.

34-1830
Snow measurements on the antarctic shelf ice. [O snegomernykh nabliudeniiakh na antarkticheskom pripae].
Kozlovskii, A.M., *Sovetskaia antarkticheskaia ekspeditsiia. Informatsionnyi biulleten'*, 1979, No.99, p.74-77, In Russian. 8 refs.
Sea ice, Sea water, Fast ice, Floating ice, Snow accumulation, Snow depth, Seepage, Antarctica.
Since sea water infiltration of sea ice is different in Antarctic from that in the Arctic, traditional measures of snow accumulation on shelf ice have led to serious underestimation of snow accumulation in southern high latitudes. The depth of the snow-water layer in the Bay of Cosmonauts and near Mirnyy is discussed and charted and a new method for more accurately assessing the contribution of snow accumulation to shelf ice depth suggested.

34-1831
Time effect on the strength and service life of winter laying of silicate bricks using potash and sodium nitrate as cement additives. [Vliianie vozrasta na prochnost' i dolgovechnost' zimnei kladki iz silikatnogo kirpicha na rastvorakh s potashom i nitritom natriia].
Kotov, I.T., Prochnost' krupnopanel'nykh i kamennykh konstruktsii (Strength of large-panel and stone structures) edited by S.A. Sementsov and V.A. Kamelko, Moscow, Stroiizdat, 1972, p.224-236, In Russian.
DLC TA670.P7
Cold weather construction, Bricks, Mortars, Cement admixtures.

34-1832
Effect of compression on the strength of brickwork built in freezing weather. [Vliianie obzhatiia na prochnost' zimnei kladki].
Kotov, I.T., Prochnost' krupnopanel'nykh i kamennykh konstruktsii (Strength of large-panel and stone structures) edited by S.A. Sementsov and V.A. Kamelko, Moscow, Stroiizdat, 1972, p.236-237, In Russian.
DLC TA670.P7
Walls, Bricks, Mortars, Freeze thaw cycles, Frost resistance, Strength.

34-1833
Allowing for temperature effect when designing large panel buildings. [Uchet temperaturnykh vozdeistvii pri proektirovanii krupnopanel'nykh zdanii].
Emel'ianov, A.A., *Moscow. Tsentral'nyi nauchno-issledovatel'skii institut stroitel'nykh konstruktsii. Trudy*, 1970, Vol.10, p.25-89, In Russian. 10 refs.
DLC TH441.U26
Large panel buildings, Foundations, Thermal stresses, Walls, Design.

34-1834
Selecting design values of temperature when calculating buildings for thermal and moisture effects and settling. [Vybor raschetnykh znachenii temperatur pri raschetakh konstruktsii zdanii na temperaturno-vlazhnostnye vozdeistviia i usadku].
Emel'ianov, A.A., *Moscow. Tsentral'nyi nauchno-issledovatel'skii institut stroitel'nykh konstruktsii. Trudy*, 1970, Vol.10, p.90-119, In Russian. 4 refs.
DLC TH441.U26
Large panel buildings, Concrete structures, Walls, Thermal stresses, Soil water migration, Foundations, Settlement (structural), Design.

34-1835
Allowing for humidity when designing external brick walls. [Uchet pri proektirovanii naruzhnykh kirpichnykh sten vlazhnostnykh uslovii ikh raboty].
Shishkin, A.A., et al, *Moscow. Tsentral'nyi nauchno-issledovatel'skii institut stroitel'nykh konstruktsii. Trudy*, 1970, Vol.10, p.120-138, In Russian.
Tsitron, M.F.
DLC TH441.U26
Industrial buildings, Bricks, Walls, Humidity, Frost resistance, Design, Wind factors.

34-1836
Operating large dumpers at the "Tsentral'nyy" mine, the "Apatit" departure yard. [Ekspluatatsiia bol'shegruznykh avtosamosvalov na rudnike "Tsentral'nyi" PO "Apatit"].
Kolesnikov, V.G., et al, *Gornyi zhurnal*, Sep. 1979, No.9, p.17-18, In Russian.
Mining, Transportation, Motor vehicles, Frozen cargo, Cold weather operation.

34-1837
New technology of recovering crushed ore when mining valuable metals at subzero temperatures. [Novaia tekhnologiia izvlecheniia poter' otbitoi rudy pri razrabotke tsennykh rud v usloviiakh otritsatel'nykh temperatur].
Popov, N.I., et al, *Gornyi zhurnal*, Sep. 1979, No.9, p.22-24, In Russian. 4 refs.
Ivanov, A.A., Pivovarov, L.K., Kardashov, S.P.
Mining, Excavation.

34-1838
Using "ifzanite" explosives in the Noril'sk Mining Concern. [Primenenie ifzanitov na Noril'skom GMK].
Mamashev, IU.P., et al, *Gornyi zhurnal*, Sep. 1979, No.9, p.29-30, In Russian.
Golovko, T.S., Viktorov, S.D.
Mining, Explosives, Permafrost, USSR—Noril'sk.

34-1839
30,000-yr isotope climatic record from antarctic ice.
Lorius, C., et al, *Nature*, Aug. 23, 1979, 280(5724), p.644-648, 32 refs.
Merlivat, L., Jouzel, J., Pourchet, M.
Ice cores, Ice sheets, Isotope analysis, Snow accumulation, Ice dating, Climate.
Simple glaciological conditions at Dome C in east Antarctica have made possible a more detailed and accurate interpretation of an ice core to 950 m depth spanning some 32,000 yr than that obtained from earlier ice cores. Dated events in comparable marine core has enabled the reduction of accumulation rate during the last ice age to be estimated. Climatic events recorded in the ice core indicate that the warmest Holocene period in the Southern Hemisphere occurred at an earlier date than in the Northern Hemisphere. (Auth.)

34-1840
Impact of CO_2 on cooling of snow and water surfaces.
Choudhury, B., et al, *Nature*, Aug. 23, 1979, 280(5724), p.668-671, 27 refs.
Kukla, G.
Snow surface, Radiation absorption, Cooling, Carbon dioxide, Sea ice, Ice surface, Heating.

34-1841
Ice movements and deglaciation of the central parts of Saltfjellet, Nordland, north Norway. [Isbevegelser og isavsmeltning i den sentrale delen av Saltfjellet, Nordland, Nord-Norge].
Sveian, H., et al, *Trondheim. Norges geologiske undersokelse. Bulletin*, 1979, No.49, p.1-20, In Norwegian with English summary. 19 refs.
Aa, A.R., Kjaernes, P.A.
Glacial geology, Glacial lakes, Moraines, Ice dams.

34-1842
Episodic variations of snow contamination of an Arctic snowfield.
Gjessing, Y.T., *Atmospheric environment*, 1977, 11(7), p.643-647, 15 refs.
Snow composition, Snow impurities, Atmospheric circulation.

34-1843
Nondestructive testing of in-service highway pavements in Maine.
Smith, N., et al, *U.S. Army Cold Regions Research and Engineering Laboratory,* Apr. 1979, CR 79-6, 22p. ADA-069 817.
Eaton, R.A., Stubstad, J.
Roads, Cold weather tests, Pavements, Bearing strength, Flexural strength.
Nondestructive repetitive plate bearing (RPB) tests were conducted on various test sections in state highways in Maine during April 13-15, 1976. The RPB test consists of making resilient surface deflection measurements during repetitive loadings at various radii from the load plate. The pavement system stiffness was calculated, and the resilient modulus values for the various pavement layers were determined with the Chevron computer program for a layered elastic system. A thawed analysis using nondimensional deflection curves for the various sections provided a guide to the susceptibility of the pavement systems to surface failure and pothole development. Some comparisons between stabilized and nonstabilized aggregate and soil were made with calculated stiffness values. The moduli of the various materials were also compared. The residual surface deflections during testing for several pavement systems indicated a linear logarithmic relationship with number of load applications. A relationship between the modulus of the asphalt cement concrete pavement and pavement temperature was developed for the limited temperature range during the testing.

34-1844
Lomonosov Ridge Experiment: Lorex 79.
Weber, J.R., *American Geophysical Union. Transactions,* Oct. 16, 1979, 60(42), p.715-721, 5 refs.
Gravimetric prospecting, Drift stations, Sea ice, Seismic surveys, Oceanographic surveys.

34-1845
Application of recent results in functional analysis to the problem of water tables.
Nakano, Y., *Advances in water resources,* Dec. 1979, Vol.2, MP 1269, p.185-190, 7 refs.
Water table, Boundary value problems, Analysis (mathematics).
The traditional viewpoint in hydrology and soil physics purports that water tables appearing in porous media described by Darcy's law and the extended Darcy's law are not singular surfaces. Several particular solutions in which singularities occur are presented as counter-examples to the traditional viewpoint and as evidence supporting the new theory that water tables are generally singular surfaces.

34-1846
Steady state ice layer profile on a temperature plate in a forced convection flow.
Hirata, T., et al, *International journal of heat and mass transfer,* Oct. 1979, 22(10), p.1425-1443, In English with French, German, and Russian summaries. 39 refs.
Gilpin, R.R., Cheng, K.C., Gates, E.M.
Ice growth, Laminar flow, Turbulent flow, Convection, Temperature effects, Ice cover thickness.

34-1847
Research annual report 1978-79.
Alaska. University, Fairbanks, 1979, 129p.
Research projects.

34-1848
Investigations of surface-wave dispersion in an inhomogeneous medium by the finite difference method.
Acharya, H.K., et al, *Seismological Society of America. Bulletin,* Oct. 1978, 68(5), p.1381-1386, 11 refs.
Bentley, C.R.
Ice sheets, Wave propagation, Ice density, Analysis (mathematics), Antarctica—Marie Byrd Land.
Surface-wave dispersion for the ice sheet of Marie Byrd Land, in which velocity and density increase continuously with depth and gradients near the surface are steep, has been computed by solving the equations of motion directly by finite differences. No simplifying assumptions or approximations about parameter variations with depth have been made. Computer results agree well with observed data without the introduction of any anisotropy, as was needed in a previous analysis (Acharya, 1972). Tests of the assumptions made in the previous analysis show that (a) the approximation Poisson's ratio = 1/4 introduces no significant error, even though Poisson's ratio actually varies from 1/4 to 1/3 in the upper part of the ice sheet, and (b) the assumption of a constant density, required if one is to separate compressional and shear-wave displacement potentials, is unsatisfactory. (Auth.)

34-1849
Power supply on construction sites of hydroelectric power plants. [Ratsional'naia organizatsiia elektrosnabzheniia stroitel'nykh ploshchadok GES],
Velts, I.E., *Energeticheskoe stroitel'stvo,* Nov. 1979, No.11, p.41-44, In Russian.
Industrial buildings, Electric power, Site accessibility, Cold weather construction.

34-1850
Organizing the preliminary period of the Kolyma hydroelectric power plant construction. [Organizatsiia podgotovitel'nogo perioda stroitel'stva Kolymskoi GES],
Pavlov, B.N., et al, *Energeticheskoe stroitel'stvo,* Nov. 1979, No.11, p.44-47, In Russian.
Frumkin, N.V.
Electric power, Industrial buildings, Permafrost beneath structures, Construction materials, Transportation, USSR—Kolyma River.

34-1851
Improving the design of supports for overhead power lines of and exceeding 500 kv. [Puti sovershenstvovaniia konstruktsii opor dlia VL 500 kV i vyshe],
Peterson, L.L., et al, *Energeticheskoe stroitel'stvo,* Nov. 1979, No.11, p.48-51, In Russian. 2 refs.
Kurnosov, A.I., Gabliia, IU.A.
Power line supports, Foundations, Metals, Concrete structures, Permafrost beneath structures, Swamps, Design.

34-1852
Proceedings of the first all-union symposium Biosphere and Man. [Materialy],
Vsesoiuznyi simpozium Chelovek i biosfera, 1st, Moscow, Sept. 24-28, 1973, Moscow, Nauka, 1975, 335p., In Russian. For selected papers see 34-1853 through 34-1862.
Kovda, V.A., ed.
DLC QH77.R8V792
Taiga, Landscape types, Cryogenic soils, Soil erosion, Soil chemistry, Alpine landscapes, Swamps, Peat, Land reclamation, Environmental protection.

34-1853
Biologic productivity and chemical element cycles in spruce-green moss central and northern taiga of the Komi Autonomous Soviet Socialist Republic. [Biologicheskaia produktivnost' i osnovnye pokazateli krugovorota khimicheskikh lementov v el'nikakh-zelenomoshnikakh srednei i severnoi taigi Komi ASSR],
Zaboeva, I.V., et al, Vsesoiuznyi simpozium Chelovek i biosfera, 1st, Moscow, Sept. 24-28, 1973. Materialy (Proceedings of the first all-union symposium Biosphere and Man) edited by V.A. Kovda, Moscow, Nauka, 1975, p.81-82, In Russian.
Rusanova, G.V., Sloboda A.V.
DLC QH77.R8V792
Taiga, Cryogenic soils, Mosses, Biomass, Soil chemistry, Chemical composition.

34-1854
Biologic productivity and chemical element cycles in spruce-lichens in the central taiga of the Komi ASSR. [Biologicheskaia produktivnost' i krugovorot khimicheskikh elementov v sosniake lishainikovom srednei taigi Komi ASSR],
Rusanova, G.V., et al, Vsesoiuznyi simpozium Chelovek i biosfera, 1st, Moscow, Sept. 24-28, 1973. Materialy (Proceedings of the first all-union symposium Biosphere and Man) edited by V.A. Kovda, Moscow, Nauka, 1975, p.83-84, In Russian.
Sloboda, A.V.
DLC QH77.R8V792
Taiga, Cryogenic soils, Soil chemistry, Chemical composition, Lichens, Biomass.

34-1855
Scientific basis for combined studies of Alpine regions. [Nauchnye osnovy kompleksnogo issledovaniia vysokogornykh stran],
Nazarov, A.G., Vsesoiuznyi simpozium Chelovek i biosfera, 1st, Moscow, Sept. 24-28, 1973. Materialy (Proceedings of the first all-union symposium Biosphere and Man) edited by V.A. Kovda, Moscow, Nauka, 1975, p.98-100, In Russian.
DLC QH77.R8V792
Alpine landscapes, Alpine glaciation, Landscape types, Cryogenic soils, Maps, Geochemical cycles, Glacial hydrology, Plant ecology, Biomass, Human factors, USSR—Caucasus.

34-1856
Microelement variations in peat-bog soils of the northwestern Russian Soviet Federated Socialist Republic during land development. [Izmenenie soderzhaniia mikroelementov v torfiano-bolotnykh pochvakh severo-zapadnoi zony RSFSR v protsesse ikh osvoeniia],
Zavgorodniaia, R.E., et al, Vsesoiuznyi simpozium Chelovek i biosfera, 1st, Moscow, Sept. 24-28, 1973. Materialy (Proceedings of the first all-union symposium Biosphere and Man) edited by V.A. Kovda, Moscow, Nauka, 1975, p.126-127, In Russian.
Toikka, M.A., Kalmykov, G.S.
DLC QH77.R8V792
Swamps, Peat, Soil chemistry, Land reclamation.

34-1857
Changes in the runoff from reclaimed marshlands in South Karelia. [Izmenenie stoka s osushaemykh bolot IUzhnoi Karelii],
Nesterenko, I.M., et al, Vsesoiuznyi simpozium Chelovek i biosfera, 1st, Moscow, Sept. 24-28, 1973. Materialy (Proceedings of the first all-union symposium Biosphere and Man) edited by V.A. Kovda, Moscow, Nauka, 1975, p.127-128, In Russian.
Andrianova, T.S.
DLC QH77.R8V792
Swamps, Drainage, Peat, Soil water migration, Runoff, Soil chemistry, Soil composition.

34-1858
Reclamation impact on northern peat soils. [Vliianie melioratsii na torfianye pochvy v usloviiakh Severa],
Nesterenko, I.M., Vsesoiuznyi simpozium Chelovek i biosfera, 1st, Moscow, Sept. 24-28, 1973. Materialy (Proceedings of the first all-union symposium Biosphere and Man) edited by V.A. Kovda, Moscow, Nauka, 1975, p.129-130, In Russian.
DLC QH77.R8V792
Swamps, Peat, Drainage, Soil water migration, Soil chemistry, Soil erosion.

34-1859
Central taiga soil cover in Eastern Transbaikal. [O pochvennom pokrove srednei taigi Vostochnogo Zabaikal'ia],
Alifanov, V.M., Vsesoiuznyi simpozium Chelovek i biosfera, 1st, Moscow, Sept. 24-28, 1973. Materialy (Proceedings of the first all-union symposium Biosphere and Man) edited by V.A. Kovda, Moscow, Nauka, 1975, p.159-161, In Russian.
DLC QH77.R8V792
Taiga, Cryogenic soils, Permafrost depth, Active layer, Mountain soils, Swamps, Permafrost hydrology.

34-1860
Role of mineral fertilizers in the increase of productivity of cryogenic soils in Eastern Transbaikal. [Rol' mineral'nykh udobrenii v povyshenii produktivnosti pochv kriosfery (na primere Vostochnogo Zabaikal'ia)],
Gershevich, E.G., et al, Vsesoiuznyi simpozium Chelovek i biosfera, 1st, Moscow, Sept. 24-28, 1973. Materialy (Proceedings of the first all-union symposium Biosphere and Man) edited by V.A. Kovda, Moscow, Nauka, 1975, p.161-162, In Russian.
Gershevich, V.D.
DLC QH77.R8V792
Cryogenic soils, Meadow soils, Forest soils, Nutrient cycle, Agriculture, USSR—Transbaikal.

34-1861
Role of vegetational cover in the development of cryogenic biogeocenoses. [Znachenie rastitel'nogo pokrova v razvitii merzlotnogo biogeotsenoza],
Makeev, O.V., et al, Vsesoiuznyi simpozium Chelovek i biosfera, 1st, Moscow, Sept. 24-28, 1973. Materialy (Proceedings of the first all-union symposium Biosphere and Man) edited by V.A. Kovda, Moscow, Nauka, 1975, p.164-165, In Russian.
Kerzhentsev, A.S., Gershevich, E.G.
DLC QH77.R8V792
Cryogenic soils, Meadow soils, Forest soils, Geochemical cycles, Chemical composition, Soil temperature, Microclimatology.

34-1862
Geobotanical maps and plant conservation provisions for economically developing areas of Central and Eastern Siberia. [Geobotanicheskie karty i organizatsiia okhrany rastitel'nosti osvaivaemykh raionov Srednei i Vostochnoi Sibiri].
Belov, A.V., Vsesoiuznyi simpozium Chelovek i biosfera, 1st, Moscow, Sept 24-28, 1973. Materialy (Proceedings of the first all-union symposium Biosphere and Man) edited by V.A. Kovda, Moscow, Nauka, 1975 p.206-207, In Russian
DLC QH77.R8V792
Cryogenic soils, Vegetation patterns, Maps, Geobotanical interpretation, Environmental protection.

34-1863
Mountain landscape protection in Siberia. [Okhrana gornykh landshaftov Sibiri].
Krylov, G.V., ed, Novosibirsk, Nauka, 1973, 251p., In Russian. For selected papers see 34-1864 through 34-1876 Refs passim.
DLC QH77.R8049
Alpine tundra, Taiga, Steppes, Environmental protection, Landscape types, Mountain soils, Soil microbiology, Cryogenic soils, Soil erosion, Revegetation, Microclimatology, Biomass.

34-1864
Scientific approaches to the problems of mountain landscape preservation. [Nauchnye podkhody k problemam okhrany gornykh landshaftov].
Fadeeva, N.V., et al, Okhrana gornykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973, p.16-24, In Russian. 9 refs.
Aleksandrova, T.D., Mukhina, L.I., Preobrazhenskii, V.S.
DLC QH77.R8049
Environmental protection, Landscape types, Taiga, Steppes, Soil erosion, USSR—Baykal Lake.

34-1865
Peculiarities of mountain landscapes in the Krasnoyarsk area and their protection. [Osobennosti gornykh landshaftov Krasnoiarskogo kraia i ikh okhrana].
Kirillov, M.V., Okhrana gornykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973, p.24-26, In Russian
DLC QH77.R8049
Alpine landscapes, Environmental protection, Alpine tundra, Taiga.

34-1866
Small scale geobotanical mapping as a basis for scientific organization of Alpine vegetation protection. [Melkomasshtabnoe geobotanicheskoe kartografirovanie kak osnova nauchnoi organizatsii okhrany gornoi rastitel'nosti].
Belov, A.V., Okhrana gornykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973, p.34-37, In Russian
DLC QH77.R8049
Alpine landscapes, Environmental protection, Alpine tundra, Taiga, Mapping, Geobotanical interpretation.

34-1867
Scientific and practical significance of studying partial inhomogeneity of mountain taiga soils. [Nauchnoe i prakticheskoe znachenie izucheniia partsel'iarnoi neodnorodnosti lesnykh pochv chernevoi taigi].
Taranov, S.A., Okhrana gornykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973, p.59-66, In Russian. 8 refs.
DLC QH77.R8049
Taiga, Cryogenic soils, Alpine landscapes, Environmental protection, Biomass, Soil microbiology, Soil chemistry.

34-1868
Utilization and protection of mountain forests. [Ispol'zovanie i okhrana gornykh lesov].
Beliak, V.I., et al, Okhrana gornykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973, p.67-70, In Russian.
Volloshnikov, V.A.
DLC QH77.R8049
Alpine landscapes, Forest land, Environmental protection, Soil erosion, Forest fires.

34-1869
Rational utilization of Ural Mountain forests. [Osobennosti ratsional'nogo ispol'zovaniia gornykh lesov Urala].
Zubareva, R.S., et al, Okhrana gornykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973, p.70-78, In Russian. 17 refs.
Kolesnikov, B.P., Smolonogov, E.P., Fil'roze, E.M.
DLC QH77.R8049
Environmental protection, Forest land, Landscape types, Taiga, USSR—Ural Mountains.

34-1870
Microclimatic variations and pine forest revegetation in relation to economic development of the Sayan low mountain belt. [Izmeneniia mikroklimata i vozobnovleniia khvoinykh porod v sviazi s promyshlennym osvoeniem lesov nizkogornogo poiasa Saian].
Gaas, A.A., Okhrana gornykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973, p.78-87, In Russian. 10 refs.
DLC QH77.R8049
Environmental protection, Mountain soils, Taiga, Revegetation, Landscape types, Microclimatology, Biomass, USSR—Sayan Mountains.

34-1871
Utilization of mountain forests in the Kuznetskiy Basin. [Ispol'zovanie gornykh lesov Kuzbassa].
Kalinin, A.M., Okhrana gornykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973, p.87-92, In Russian.
DLC QH77.R8049
Forestry, Taiga, Revegetation, Mountain soils, Environmental protection.

34-1872
Forest protection in the northern Lake Baykal Basin. [Sostoianie lesov severnoi chasti basseina Baikala i voprosy ikh okhrany].
Tkachenko, A.I., Okhrana gornykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973, p.93-98, In Russian. 2 refs.
DLC QH77.R8049
Taiga, Cryogenic soils, Environmental protection, Human factors, USSR—Baykal Lake.

34-1873
Role of mountain forests of eastern Transbaikal and the Lake Baykal problem. [Rol' gornykh lesov vostoka Zabaikal'ia v probleme Baikala].
Panarin, I.I., Okhrana gornykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973, p.98-102, In Russian. 3 refs.
DLC QH77.R8049
Mountain soils, Cryogenic soils, Taiga, Environmental protection, Landscape types, USSR—Transbaikal.

34-1874
Resistance of some West Siberian forests. [Ustoichivost' nekotorykh lesnykh kompleksov Zapadnoi Sibiri].
Taran, I.V., Okhrana gornykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973, p.103-107, In Russian. 5 refs.
DLC QH77.R8049
Mountain soils, Cryogenic soils, Taiga, Landscape types, Environmental protection.

34-1875
Rational use and preservation of Magadan area forests. [Ratsional'noe ispol'zovanie i okhrana lesov Magadanskoi oblasti].
Snytkin, G.V., Okhrana gornykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973, p.119-125
DLC QH77.R8049
Permafrost distribution, Mountain soils, Cryogenic soils, Taiga, Landscape types, Environmental protection, USSR—Magadan.

34-1876
Protection of mountain forests as a dependable water supply basis of Transbaikal. [Okhrana gornoi lesnoi rastitel'nosti kak osnova dolgovremennogo vodoobespecheniia Zabaikal'ia].
Tsyganok, V.I., Okhrana gornykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973, p.135-138, In Russian.
DLC QH77.R8049
Water supply, Forest land, Taiga, Environmental protection, USSR—Transbaikal.

34-1877
Economic analysis of the environmental impact of highway deicing salts.
Murray, D.M., *Transportation research record*, 1977, No.647, p.29-40, Includes discussions by M.C. Belangie, C.C. Sy, and R. Brenner and a closure by the author. 41 refs
Snow removal, Ice removal, Chemical ice prevention, Salting, Environmental impact, Economic analysis.

34-1878
Impact of highway deicing salts on rural stream water quality.
Champagne, D.M., *Transportation research record*, 1977, No.647, p.47-52, 5 refs
Roads, Salting, Ice removal, Water pollution.

34-1879
Urea as a deicing agent. [Urea som avisningspreparat].
Johansson, A., *Cement och betong*, Sep 1970, 45(3), p.229-308, In Swedish
Concrete admixtures, Chemical ice prevention, Urea.

34-1880
Methane addition to an Arctic lake in winter.
Welch, H.E., et al, *Limnology and oceanography*, Jan 1980, 25(1), p.100-113, 20 refs.
Rudd, J.W.M., Schindler, D.W.
Water chemistry, Gas inclusions, Oxygen, Methane, Ice cover effect.

34-1881
Ice-sheet glaciology.
Drewry, D., *Progress in physical geography*, Sep 1979, 3(3), p.313-328, Numerous refs
Research projects, Ice sheets, Radio echo soundings, Drilling, Spacecraft, Ice composition, Models.
The author reviews the glaciological literature since 1970 analyzing various methods of exploring ice sheets: new methods, improved older methods, useful ones no longer actively pursued, mainly due to lack of funding. He cites some of the results and successes of the various methods and mentions several of the highly organized research projects currently in progress both in Antarctica and in Greenland.

34-1882
On upwelling driven by the melt of ice shelves and tidewater glaciers.
Greisman, P., *Deep-sea research*, Sep. 1979, 26(9A), p.1051-1065, 18 refs
Upwelling, Glacier melting, Ice shelves, Water temperature.

34-1883
Polar research.
Turner, M.D., *Geotimes*, Feb. 1980, 25(2), p.43-44
Glacier thickness, Ice sheets, Permafrost, Drill core analysis.
Antarctic and Arctic research studies of the past year are reviewed. Preliminary findings include the following. A rich and varied microbial flora has been found in rocks of the dry valleys. Major outlet glaciers from the East Antarctic ice sheet, such as the Byrd and Darwin, were found to be 1,000 m thicker near their mouths. Eighteen different amino acids, several of them unknown from modern terrestrial sources, were identified in well-preserved and uncontaminated antarctic carbonaceous meteorites. Geochemical investigations of the antarctic ice sheets have shown that fluctuations in the concentrations of nitrate and ammonium ions, from ice and snow layers of known dates, can be correlated with observed solar activity. In addition to the above studies, a field party of some 40 scientists from 7 countries worked in the Ellsworth Mountains, and New Zealand scientists drilled a deep core hole in western McMurdo Sound, using annual sea ice as a drilling platform. West Germany is conducting its first land-based antarctic expedition in nearly 40 yr.

34-1884
Problems of the Arctic and the Antarctic, collection of articles, Vol.45, 1974.
Treshnikov, A.F., ed, New Delhi, Amerind Publishing Co., 1979, 171p., TT 75-52083, Translation of Problemy Arktiki i Antarktiki, sbornik statei, vyp.45, 1974. Refs passim. For selected articles see 34-1885 through 34-1896 or B-22705 and I-22704.
Sea ice, Ice cover strength, Hydrodynamics, Glacial hydrology, Sea level, Climatic changes, Research projects.
This volume includes papers devoted to the study and investigation of different aspects of arctic and antarctic climatology. The first four papers deal with glacial water reserve and discharge in the Arctic, Arctic cooling, large-scale sea level oscillations in the Northern Hemisphere and high relative humidity in the Arctic. Five papers are devoted to atmospheric studies in the polar regions. They cover such topics as cyclic oscillations, conjunction of certain centers of atmospheric action, characteristics of total radiation, change in wind speed and direction during geomagnetic disturbances and the relation of ionospheric troughs and plasmapause in the afternoon section. There are three papers on studies relating to the phase composition of ice, forecasting its flexural strength, and size determination of ice floes. Besides, there is a paper on the distribution of microscopic algae in Davis Sea fast ice. (Auth. mod.)

34-1885
Water resources of glaciers and glacial discharge in the Arctic.
Govorukha, L.S., et al, *Problems of the Arctic and the Antarctic, collection of articles,* 1979, Vol.45, p.1-12, TT 75-52083, For Russian original see 30-3. 33 refs.
Ivanov, V.V., Chizhov, O.P.
Glacial hydrology, Glacier ablation, Runoff, Glacier mass balance, Seasonal ablation, Seasonal variations.

34-1886
Cooling of the Arctic.
Zakharov, V.F., *Problems of the Arctic and the Antarctic, collection of articles,* 1979, Vol.45, p.13-22, TT 75-52083, For Russian original see 30-4. 14 refs.
Climatic changes, Air temperature, Weather forecasting.

34-1887
Statistical structure of large-scale sea level oscillations in the high latitudes of the Northern Hemisphere.
Bannov-Baikov, IU.L., *Problems of the Arctic and the Antarctic, collection of articles,* 1979, Vol.45, p.23-30, TT 75-52083, For Russian original see 30-5. 5 refs.
Sea level, Statistical analysis, Periodic variations.

34-1888
Secular cycle of solar activity and baric field of Earth's Northern Hemisphere.
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Sleptsov-Shevlevich, B.A.
Solar activity, Atmospheric pressure, Ice cover, Periodic variations.

34-1889
Regime of high relative humidity of air in the Arctic.
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Humidity, Polar regions.

34-1890
Quantitative relations in phase composition of sea ice.
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Sea ice, Ice salinity, Ice thermal properties.

34-1891
Method of forecasting flexural strength of ice cover.
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Ice cover strength, Sea ice, Flexural strength, Ice salinity, Forecasting.

34-1892
Choice of algorithms for numerical determination of size distribution and compactness of ice floes.
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Sea ice distribution, Ice cover strength, Icebergs, Ice forecasting, Ice conditions, Mathematical models.

34-1893
Instability of internal waves as a mechanism of heat transfer from Atlantic waters to the Arctic Basin.
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Nagurnyi, A.P., Savechenko, V.G., Shpaikher, A.O.
Heat transfer, Water temperature, Water waves, Ice conditions, Ocean currents, Ocean waves.

34-1894
Lower limit of application of hydrodynamic model of ice drift.
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Ivchenko, V.O.
Sea ice, Drift, Hydrodynamics, Mathematical models, Icebergs.

34-1895
Microscopic algae in Davis Sea fast ice.
Bulnitskii, V.Kh., et al, *Problems of the Arctic and the Antarctic, collection of articles,* 1979, Vol.45, p.126-137, TT 75-52083, For Russian original see 30-12. 10 refs.
Kozyrenko, T.F., Shamont'ev, V.A.
Fast ice, Cryobiology, Algae, Antarctica—Davis Sea.
Samples of fast ice taken from time of formation until melting in the spring were examined for algae. Species found at various times of the year and their relative frequency are given. The number and variety of algae and the monthly variations in the population testify to an active microscopic fauna in fast ice.

34-1896
Determination of winter accretion of ice in leads with consideration of hummocking.
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Buzuev, A.IA.
Sea ice, Ice accretion, Ice forecasting, Hummocks, Mathematical models.

34-1897
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Treshnikov, A.F., ed, New Delhi, Amerind Publishing Co., 1979, 166p., TT 76-52023, Translation of Problemy Arktiki i Antarktiki, sbornik statei, vyp.46, 1975. Refs. passim. For selected articles see 34-1898 through 34-1904 or A-22711, H-22709, I-22708, I-22710 and K-22707.
Hydrodynamics, Meteorology, Ice conditions, Research projects.
This volume contains papers on the following subjects: hydrometeorology, oceanography, ionospheric studies, ice conditions and topics of general nature. [illegible]terial has also been provided on the mental and physical st[illegible] of participants of Soviet Antarctic expeditions and on the work done by the Arctic Research Laboratory, Point Barrow.

34-1898
Possibility of long-range forecasting of oceanographic conditions of the Kara Sea.
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Oceanographic surveys, Hydrology, Meteorological data, Long range forecasting, Polar regions, Navigation, Kara Sea.

34-1899
Evaluation of spatial scales of disturbances and determination of some characteristics of turbulence in the Chukchi Sea.
Izmailov, V.V., *Problems of the Arctic and the Antarctic, collection of articles,* 1979, Vol.46, p.22-29, TT 76-52023, Translated from Problemy Arktiki i Antarktiki, sbornik statei, vyp.46, 1975. 3 refs.
Ocean currents, Turbulent flow, Chukchi Sea.

34-1900
Study of fractures in consolidated pack-ice cover from radar survey data.
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Losev, S.M.
Sea ice distribution, Ice cover, Ice cracks, Remote sensing, Radar photography, Drift, Ice navigation, Pack ice.

34-1901
Instability of internal waves in an ice-covered sea.
Savchenko, V.G., et al, *Problems of the Arctic and the Antarctic, collection of articles,* 1979, Vol.46, p.76-84, TT 76-52023, For Russian original see 30-3412. 10 refs.
Chepurina, M.A.
Ocean waves, Wave propagation, Ice cover effect, Analysis (mathematics).

34-1902
Ice conditions as an index of recent trends of climatic cooling on the lower reaches of the Yenisei.
Antonov, V.S., *Problems of the Arctic and the Antarctic, collection of articles,* 1979, Vol.46, p.98-105, TT 76-52023, For Russian original see 30-3413.
River ice, Ice conditions, Ice formation, Ice air interface, Climatic changes, Ice navigation, Humidity, Heat transfer, Water temperature, USSR—Yenisey River.

34-1903
Effect of physicomechanical properties and uneven thickness of ice on the motion of ships in the autumn-winter season.
Smirnov, V.I., *Problems of the Arctic and the Antarctic, collection of articles,* 1979, Vol.46, p.106-112, TT 76-52023, For Russian original see 30-3414. 7 refs.
Ice navigation, Ice cover thickness, Ice mechanics, Ice physics, Seasonal variations, Plastic flow, Ice breaking, Icebreakers.

34-1904
Load-bearing capacity of ice cover and determination of breaking strength.
Serikov, M.I., *Problems of the Arctic and the Antarctic, collection of articles,* 1979, Vol.46, p.152-156, TT 76-52023, For Russian original see 30-3415. 3 refs.
Ice cover strength, Ice cover thickness, Ice strength, Ice breaking, Ice mechanics, Buoyancy, Bearing tests, Analysis (mathematics).

34-1905
Forecasting seasonal snowmelt runoff: a summary of experience with two models applied to three drainages in the Cascade Mountains of Washington.
Lettenmaier, D.P., et al, *Washington (State) University. Hydraulics Laboratory. Technical report,* Nov. 1978, TR-59, 109p. PB-294 656.
Waddle, T.J.
Snowmelt, Runoff forecasting, Watersheds, Models.

34-1906
Reliability of 6 kV power lines in coal mines in glaze development areas. [Otsenka nadezhnosti vozdushnykh linii 6 kV ugol'nykh shakht v gololednykh raionakh],
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Mining, Electric power, Power line icing, Ice loads.

34-1907
Thermal insulation of roads with moderate traffic. [Isolation thermique des chaussées à trafic moyen],
Dysli, M., *Strasse und Verkehr,* Nov. 1979, 65(11), p.399-406, In French. 11 refs.
Roads, Thermal insulation.

34-1908
Computer analysis of freezing with water migration in time when the process is formed on snow cover surface. [Kolichestvennoe issledovanie protsessa promerzaniia s migratsiei vlagi pri formirovanii na poverkhnosti snezhnogo pokrova vo vremeni],
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Melamed, V.G.
Soil freezing, Frost penetration, Stefan problem, Computer programs, Soil water migration, Frost heave, Cryogenic structures.

34-1909
Evaluating snow cover effect on temperature field of freezing rocks, allowing for the dependence of thermophysical snow characteristics on temperature. [Otsenka vliianiia snezhnogo pokrova na temperaturnoe pole promerzaiushchikh gornykh porod pri uchete zavisimosti teplofizicheskikh kharakteristik snega ot temperatury],
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Medvedev, A.V.
Stefan problem, Soil freezing, Frost penetration, Snow cover effect, Frost forecasting.

34-1910
Approximate calculation of permafrost thickness beneath underground pipelines. [Priblizhennyi metod rascheta moshchnosti mnogoletnego promerzaniia gruntov pod zaglublennym truboprovodom],
Kondrat'ev, V.G., *Merzlotnye issledovaniia,* 1979, Vol.18, p.34-36, In Russian. 4 refs.
Underground pipelines, Permafrost thickness, Permafrost beneath structures, Permafrost hydrology.

34-1911
Influence of paludification and water bodies on thermal regime of rocks. [K otsenke vliianiia vodoemov i zabolochennosti na temperaturnyi rezhim gornykh porod],
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Kudriavtsev, V.A.
Permafrost thermal properties, Permafrost hydrology, Frozen rock temperature, Swamps, Permafrost beneath lakes, Permafrost beneath rivers.

34-1912
Computerized simulation of heat transfer in ground for improving information of geocryologic surveys. [Modelirovanie na EVM teploobmennykh protsessov v gruntakh kak sposob povysheniia informativnosti merzlotnoi s"emki territorii],
Tutkevich, A.A., *Merzlotnye issledovaniia,* 1979, Vol.18, p.43-52, In Russian.
Geocryology, Permafrost forecasting, Permafrost thermal properties, Heat transfer, Computerized simulation, Permafrost structure.

34-1913
Evaluating temperature regime of ground on the basis of system analysis of the effect of variability of temperature forming factors. [Otsenka temperaturnogo rezhima grunta na osnove sistemnogo analiza vliianiia izmenchivosti temperaturoformiruiushchikh faktorov].
Parmuzin, S.IU., *Merzlotnye issledovaniia,* 1979, Vol.18, p.53-57, In Russian. 6 refs.
Permafrost thermal properties, Frozen rock temperature, Snow cover effect, Analysis (mathematics).

34-1914
Development stages of geocryologic forecasting. [Ob etapakh razvitiia geokriologicheskogo prognoza].
Maksimova, L.N., *Merzlotnye issledovaniia,* 1979, Vol.18, p.57-62, In Russian. 3 refs.
Geocryology, Permafrost forecasting, Theories, Research projects.

34-1915
Types of geocryologic forecasting. [Vidy geokriologicheskogo prognoza].
Maksimova, L.N., *Merzlotnye issledovaniia,* 1979, Vol.18, p.63-72, In Russian. 5 refs.
Geocryology, Permafrost forecasting, Permafrost hydrology, Engineering geology, Hydrogeology, Classification.

34-1916
Permafrost thawing beneath pipes with different pipe laying methods. [Ottaivanie porod pod truboi pri raznykh sposobakh ee zalozheniia].
Zamolotchikova, S.A., *Merzlotnye issledovaniia,* 1979, Vol.18, p.73-79, In Russian.
Pipelines, Embankments, Trenching, Permafrost beneath structures, Permafrost forecasting, Ground thawing.

34-1917
Novaya Zemlya map of permafrost temperature; scale 1:2,500,000. [Merzlotno-temperaturnaia karta Novoi Zemli v masshtabe 1:2,500,000].
Kondrat'eva, K.A., *Merzlotnye issledovaniia,* 1979, Vol.18, p.80-101, In Russian. 21 refs.
Maps, Permafrost structure, Frozen rock temperature, Ice cover thickness, Ice temperature, USSR—Novaya Zemlya.

34-1918
Rock temperatures in the Kamchatka Peninsula. [Temperatura porod Kamchatki].
Zamolotchikova, S.A., et al, *Merzlotnye issledovaniia,* 1979, Vol.18, p.102-118, In Russian. 26 refs.
Smirnova, V.N.
Maps, Geology, Geocryology, Hydrology, Glaciation, Ground ice, Permafrost distribution, Snow cover distribution, USSR—Kamchatka Peninsula.

34-1919
Rock stream structure in South Yakutia. [Osobennosti stroeniia kurumov IUzhnoĭ IAkutii].
Tiurin, A.I., et al, *Merzlotnye issledovaniia,* 1979, Vol.18, p.119-128, In Russian. 6 refs.
Poltev, N.F.
Geocryology, Rock streams, Rock glaciers, Ground ice, Ice structure.

34-1920
Observing rock stream movement rates on the Chul'man Plateau. [Rezul'taty nabliudeniĭ za skorostiami dvizheniia oblomochnogo materiala kurumov Chul'manskogo Plato].
Ospennikov, E.N., *Merzlotnye issledovaniia,* 1979, Vol.18, p.129-133, In Russian. 4 refs.
Slope processes, Talus, Rock streams, Flow rate, Ground ice, Seasonal freeze thaw.

34-1921
New data on geocryological structure of swamps in southern Yakutia. [Novye dannye o merzlotnogeologicheskom stroenii bolot IUzhnoĭ IAkutii].
Chizhov, A.B., et al, *Merzlotnye issledovaniia,* 1979, Vol.18, p.134-140, In Russian. 4 refs.
Ospennikov, E.N., Piotrovskiĭ, M.V., Skobeeva, E.I.
Swamps, Permafrost distribution, Permafrost structure, Thermokarst, Ground ice, Permafrost hydrology, USSR—Yakutia.

34-1922
Amount of geocryologic information obtained from the SN-6 films used in aerial photography of the Chul'man region. [O geokriologicheskoĭ informativnosti spektrozonal'nykh aerofotomaterialov (na primere Chul'manskogo raiona)].
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Aerial surveys, Geocryology, Photographic reconnaissance, Geobotanical interpretation, Taiga.

34-1923
Studies of geobotanical indices in the medium-scale combined geocryologic survey of southern Yakutia. [Osobennosti indikatsionnykh geobotanicheskikh issledovanii pri srednemasshtabnoi kompleksnoi merzlotnoi s"emke (na primere IUzhnoi IAkutii)].
Melent'ev, V.S., *Merzlotnye issledovaniia,* 1979, Vol.18, p.154-158, In Russian. 1 ref.
Mapping, Geocryology, Surveys, Geobotanical interpretation, USSR—Yakutia.

34-1924
Experimental studies of ice formation fields under nonunivariate frost penetration conditions. [Eksperimental'noe izuchenie polia l'distosti v usloviiakh neodnomernogo promerzaniia].
Zhestkova, T.N., et al, *Merzlotnye issledovaniia,* 1979, Vol.18, p.159-167, In Russian. 8 refs.
Shur, IU.L.
Soil freezing, Frost penetration, Frozen fines, Clays, Cryogenic structures, Experimentation.

34-1925
Phase composition of moisture in permafrost of different origin and age. [Fazovyi sostav vlagi v merzlykh porodakh razlichnogo genezisa i vozrasta].
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Cheverev, V.G., Akimov, IU.P., Pakhomova, T.M.
Permafrost hydrology, Unfrozen water content, Permafrost structure, Frozen fines, Ground water, Phase transformations.

34-1926
Moisture transfer and ice segregation in the frozen zone of thawing ground. [Vlagoperenos i segregatsionnoe l'dovydelenie v merzloi zone ottaivaiushchikh gruntov].
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Soil freezing, Soil water migration, Frost penetration, Ice formation, Active layer, Cryogenic structures, Experimentation.

34-1927
Bound water content in fine grained rocks. [O nerastvoriaiushchem ob"eme vody, soderzhashcheisia v tonkodispersnykh gornykh porodakh].
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Poltev, N.F.
Frozen fines, Hygroscopic water, Unfrozen water content, Molecular structure.

34-1928
Active centers at the surface of fine rock particles. [Ob aktivnykh tsentrakh na poverkhnosti chastits tonkodispersnykh gornykh porod].
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Frozen fines, Unfrozen water content, Molecular structure, Phase transformations, Ground ice.

34-1929
Lower boundary of water-ice phase transitions in frozen fines. [O nizhneĭ granitse fazovykh perekhodov vody v led v merzlykh tonkodispersnykh gornykh porodakh].
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Golovanova, G.F.
Frozen fines, Unfrozen water content, Phase transformations, Clays, Frozen rock temperature, Experimentation.

34-1930
Permafrost thickness and distribution in the low-mountain Amur River region. [Kharakter rasprostraneniia i moshchnost' mnogoletnemerzlykh porod na nizkogor'e zapadnoĭ chasti Amurskoĭ oblasti].
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Romanovskiĭ, V.E.
Permafrost distribution, Permafrost thickness, Permafrost structure, Permafrost beneath rivers, Permafrost hydrology, Permafrost depth, USSR—Amur River.

34-1931
Structure and absolute geochronology of alassy deposits in Central Yakutia. [Stroenie i absoliutnaia geokhronologiia alasnykh otlozheniĭ Tsentral'noĭ IAkutii].
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Alassy, Cryogenic structures, Thermokarst, Geocryology, Ground ice, Permafrost dating, USSR—Yakutia.

34-1932
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Lepnev, M.I., et al, Leningrad, Stroizdat, 1979, 94p., In Russian with English table of contents enclosed. 10 refs.
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Frozen cargo, Unloading, Heating, Infrared equipment.

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DLC VM3.S3
Marine transportation, Ships, Ice navigation, Rescue equipment, Cold weather operation, Icebreakers.

34-1934
Importance of full scale testing in ice for designing icebreaking ships.
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Icebreakers, Tests, Ice conditions, Ice pressure, Protective coatings.

34-1935
Steel-ice friction coefficients from field and laboratory research. [Reibungskoeffizienten Stahl-Eis aus Versuchen in der Arktis und im Labor].
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Ice friction, Ice solid interface, Steels, Measuring instruments, Research projects, Ice temperature, Ice salinity.

34-1936
Subsurface drainage in Siberia and methods of its investigation. [Podzemnyĭ stok na territorii Sibiri i metody ego izucheniia].
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Permafrost distribution, Permafrost hydrology, Subsurface drainage, Permafrost structure, Water supply, Water reserves, Naleds, Meltwater, Water chemistry.

34-1937
Role of naleds in chemical element migration in water. [Rol' naledeĭ v formirovanii khimicheskogo stoka].
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Naleds, Meltwater, Water chemistry, Freeze thaw cycles.

34-1938
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Mining, Water supply, Permafrost hydrology, Water reserves, Exploration, Permafrost thickness, Permafrost structure, Drilling.

34-1939
Temporary variations in subsurface drainage of southwestern Transbaikal. [Vremennaia izmenchivost' podzemnogo stoka IUgo-Zapadnogo Zabaĭkal'ia].
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Permafrost distribution, Permafrost hydrology, Subsurface drainage, Permafrost structure, USSR—Transbaikal.

34-1940
Role of seasonal ground freezing in ground water regimes of the area east of Lake Baykal. [Rol'sezonnogo promerzaniia gruntov v formirovanii rezhima podzemnykh vod v Predbaikal'e],
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Soil freezing, Seasonal freeze thaw, Soil water migration, Frost penetration, USSR—Baykal Lake.

34-1941
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Roads, Pavements, Prefabrication, Modular construction, Wooden structures.

34-1942
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Savel'ev, V.V.
Pavements, Prefabrication, Reinforced concretes, Sleds, Roads.

34-1943
Bauxite slag replaces gravel. [Boksitovyi shlam vmesto graviia],
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Motovilov, B.P., Grishin, P.V.
Roads, Pavements, Construction materials, Wastes.

34-1944
Machine for road building and maintenance. [Mashina dlia dorozhnykh rabot],
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Potapov, IU.N., Zhelezniak, F.A.
Roads, Construction equipment, Winter maintenance, Snow removal, Snow roads.

34-1945
Road bed and surface design. [Problemy proektirovannia zemlianogo polotna i dorozhnoi odezhdy],
Vyrko, N.P., *Lesnaia promyshlennost'*, 1979, No.8, p.18, In Russian.
Pavements, Roadbeds, Frost penetration, Frost heave, Design.

34-1946
Impervious plastic screens on butyl-rubber base. [Protivofil'tratsionnye ekrany iz polimernykh materialov na osnove butilkauchuka],
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Kosichenko, IU.M.
Hydraulic structures, Channels (waterways), Slope protection, Linings, Plastics.

34-1947
Service life of plastic linings for waterways. [Dolgovechnost' plenochnykh ekranov v oblitsovkakh kanalov],
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Hydraulic structures, Channels (waterways), Slope protection, Linings, Plastics.

34-1948
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Hydraulic structures, Earth dams, Swamps, Peat, Construction materials.

34-1949
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Swamps, Land reclamation, Peat, Organic soils, Excavation, Dredging.

34-1950
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Swamps, Hydraulic structures, Earth dams, Foundations, Peat, Bearing strength.

34-1951
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Forest tundra, Plant physiology, USSR—Taymyr Peninsula.

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Glacier ablation, Solar radiation, Heat balance, Analysis (mathematics).

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Glacier ablation, Mountain glaciers, Ice melting, Meteorological factors.

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River basins, Avalanche formation, Snow accumulation, Avalanche triggering, Avalanche forecasting.

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Maslovskiĭ, M.I.
Pack ice, Ice conditions, Drift, Mathematical models, Arctic Ocean.

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Sea ice, Pack ice, Stresses, Ice deformation, Drift, Ice density, Ice edge, Analysis (mathematics).

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Cherkesov, L.V.
Mathematical models, Ice cover thickness, Drift, Sea ice, Oscillations, Atmospheric disturbances.

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Asymmetric dynamics of ice cover. [Ob asimmetrichnoĭ dinamike ledianogo pokrova].
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Maslovskiĭ, M.I.
Sea ice, Ice conditions, Drift, Ice floes, Dynamic properties, Ocean currents, Turbulence, Mathematical models.

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Increased mercury contamination of distilled and natural water samples caused by oxidizing preservatives.
Cragin, J.H., *Analytica chimica acta*, 1979, Vol.110, MP 1270, p.313-319, 18 refs.
Water chemistry, Gases, Vapor transfer, Pollution, Laboratories.
The passage of mercury vapor from ambient air through the walls of conventional polyethylene (CPE), linear polyethylene (LPE), and Teflon (FEP) containers can seriously contaminate solutions of distilled and natural water stored in these containers. The rate of mercury contamination is dramatically increased when the sample solution contains oxidizing agents such as nitric acid or potassium permanganate, which are commonly used as preservatives to prevent loss of mercury (II) ion. The rate of contamination also depends on container material and decreases in the order CPE > LPE > FEP > glass. Freezing the samples in plastic containers is an effective way to prevent mercury contamination. When freezing is not practical, storage in glass containers minimizes sample contamination from ambient mercury vapor.

34-2005
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Engineering, Cold weather construction, Transportation, Environments, Research projects, Canada.

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Bunnell, F.L.
Tundra, Soil microbiology, Decomposition, Fungi, Climatic factors, Models.

34-2007
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Swamps, Peat, Soil formation, Frost penetration, Ground ice, Soil water migration, Vegetation factors.

34-2008
Water resourses of the Yenisey River basin and their mapping. [Vodnye resursy basseĭna Eniseia i ikh kartirovanie].
Cherkasov, A.E., *Geograficheskoe obshchestvo SSSR. Vostochno-Sibirskiĭ otdel. Izvestiia*, 1976, Vol.69, p.91-98, In Russian. 3 refs.
Water reserves, Charts, USSR—Yenisey River.

34-2009
Classification of forest-steppe landscapes in the Angara River area. [Klassifikatsiia landshaftov lesostepnogo Priangar'ia].
Filippova, S.A., *Geograficheskoe obshchestvo SSSR. Vostochno-Sibirskiĭ otdel. Izvestiia*, 1976, Vol.69, p.114-120, In Russian. 15 refs.
Steppes, Forest land, Taiga, Landscape types, Classifications.

34-2010
Comparative analysis of past and present glacial and permafrost relief forms in Asia. [Sravnitel'nyĭ analiz rasprostraneniia sovremennogo i drevnego lednikovogo i merzlotnogo rel'efa Azii].
Kazakova, N.M., Geografiia i paleogeografiia klimomorfogeneza (Geography and paleogeography of climate and morphogenesis) edited by A.P. Kapitsa, Vladivostok, 1976, p.10-45, In Russian. Refs. p.41-45.
DLC GB327.S68G46
Permafrost distribution, Permafrost origin, Glaciation, Glacier formation, Topography, Paleoclimatology, Slope processes, Solifluction, Patterned ground, Asia.

34-2011
Role of lake and naled ice in the formation of natural dynamic systems. [Rol' nalednogo i ozernogo l'da v organizatsii prirodnykh kompleksov].
Ivanets, B.S., et al, Geografiia i paleogeografiia klimomorfogeneza (Geography and paleogeography of climate and morphogenesis), Vladivostok, 1976, p.57-66, In Russian. 8 refs.
Skryl'nik, G.P.
DLC GB327.S68G46
Lake ice, River ice, Naleds, Ice formation, Ice deterioration, Permafrost hydrology, Ground ice.

34-2012
Determining particle distribution of ice-forming reagents in clouds using the Setton diffusion model. [K opredeleniiu zakonomernosteĭ rasprostraneniia chastits l'doobrazuiushchego reagenta v oblakakh na osnove diffuzionnoĭ modeli Settona].
Klingo, V.V., et al, *Leningrad. Glavnaia geofizicheskaia observatoriia. Trudy*, 1979, Vol.405, p.41-50, In Russian. 10 refs.
Kudashkin, G.D.
Ice nuclei, Cloud seeding, Nucleating agents, Models.

34-2013
Electric field effect on crystallization of supercooled water. [K voprosu o vliianii elektricheskogo polia na kristallizatsiiu pereokhlazhdennoĭ vody].
Nikandrov, V.IA., et al, *Leningrad. Glavnaia geofizicheskaia observatoriia. Trudy*, 1979, Vol.405, p.65-70, In Russian. 12 refs.
Shlykov, V.V.
Ice crystal growth, Cloud droplets, Supercooled clouds, Electric fields, Analysis (mathematics).

34-2014
Studying freezing of large water drops in the corona discharge area. [Issledovanie zamerzaniia krupnykh vodianykh kapel' v oblasti koronnogo razriada].
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Pershina, T.A., Shishkin, N.S.
Cloud droplets, Cloud electrification, Supercooled clouds, Cold chambers, Test equipment.

34-2015
Heterogeneous nucleation by organic crystalization
[illegible]
l'da na organicheskikh iadrakh kristallizatsii].
Girs, S.P., et al, *Leningrad. Glavnaia geofizicheskaia observatoriia. Trudy*, 1979, Vol.405, p.76-82, In Russian. 12 refs.
Zhukovskiĭ, A.P., Serova, M.N.
Cloud seeding, Organic nuclei, Nucleating agents.

34-2016
Studying phase transformations of water when reacting with different underlying surfaces. [Nekotorye rezul'taty issledovaniia fazovykh perekhodov vody pri vzaimodeĭstvii s poverkhnost'iu razlichnykh podlozhek].
Girs, S.P., et al, *Leningrad. Glavnaia geofizicheskaia observatoriia. Trudy*, 1979, Vol.405, p.83-90, In Russian. 5 refs.
Kamentsev, V.N.
Cloud droplets, Phase transformations, Artificial nucleation, Ice nuclei, Cloud seeding.

34-2017
Roasting loess soils to a depth of 25 m.
Litvinov, I.M., et al, *Soil mechanics and foundation engineering*, May-June 1979 (Pub. Nov. 79), 16(3), p.124-128, Translated from Osnovaniia, fundamenty i mekhanika gruntov. 7 refs.
Tregub, A.S., Stepura, I.V., Tian, R.B.
Soil stabilization, Loess, Heating.

34-2018
Experimental investigation of the stress-strain state of loess soils in the base of rigid plates.
Tsytovich, N.A., et al, *Soil mechanics and foundation engineering*, May-June 1979 (Pub. Nov. 79), 16(3), p.140-145, Translated from Osnovaniia, fundamenty i mekhanika gruntov. 8 refs.
Abelev, M.IU., Sidorchuk, V.F., Polishchuk, A.I.
Loess, Bearing tests, Soil water migration, Foundations, Deformation.

34-2019
Engineering-landscape investigations and surveys of railroad routes in mountain taiga. [Inzhenerno-landshaftnye issledovaniia i izyskaniia trass zheleznykh dorog v gornotaezhnykh raĭonakh].
Popovichev, E.A., *Geograficheskoe obshchestvo SSSR. Obninskiĭ otdel. Nauchnye trudy*, 1968, 1(1), p.19-26, In Russian. 17 refs.
Railroads, Engineering geology, Surveys, Landscape types, Taiga.

34-2020
Technical and economic calculations of field work for engineering surveys and landscape studies in mountain taiga. [O skheme tekhniko-ekonomicheskikh raschetov polevykh rabot pri inzhenerno-landshaftnykh issledovaniiakh v gornoĭ taige].
Popovichev, E.A., *Geograficheskoe obshchestvo SSSR. Obninskiĭ otdel. Nauchnye trudy*, 1968, 1(1), p.44-53, In Russian. 20 refs.
DLC G1.G31155
Engineering geology, Landscape types, Surveys, Taiga, Cost analysis.

34-2021
Influence of subzero temperatures on the erosion resistance of soils depending on their humidity. [Vliianie otritsatel'nykh temperatur na protivoerozionnuiu stoĭkost' pochvy v zavisimosti ot ee vlazhnosti].
Muromtsev, N.A., *Geograficheskoe obshchestvo SSSR. Obninskiĭ otdel. Nauchnye trudy*, 1968, 1(2), p.22-25, In Russian. 5 refs.
DLC G1.G31155
Soil freezing, Soil water, Frost penetration, Soil erosion, Seasonal freeze thaw.

34-2022
Calculating the balance of Arctic Ocean pollutants. [Spetsifika rascheta balansa zagriazniaiushchikh veshchestv Severnogo Ledovitogo okeana].
Izmaĭlov, V.V., et al, *Geograficheskoe obshchestvo SSSR. Izvestiia*, Nov.-Dec. 1979, 111(6), p.486-491, In Russian. 4 refs.
Simagin, V.M.
Water pollution, Sea ice, Snow cover, Oil spills, Adsorption, Albedo, Ice strength, Ice melting, Arctic Ocean.

34-2023
Mathematical problem of selecting pipeline diameters for aircraft deicing systems. [Matematicheskaia formulirovka zadachi vybora diametrov truboprovodov v sistemakh protivoobledeneniia letatel'nykh apparatov].
IAlovkin, B.D., et al, *Samoletostroenie i tekhnika vozdushnogo flota; respublikanskiĭ mezhduvedomstvennyĭ nauchno-tekhnicheskiĭ sbornik*, 1979, Vol.46, p.76-81, In Russian. 3 refs.
Skliarenko, N.A., Tursunkhodzhaeva, V.V.
Aircraft icing, Ice prevention, Heat pipes.

34-2024
Principal results of frost action experiments at the Centre de Géomorphologie. [Principaux résultats des expériences de gélifraction expérimentale effectuées au Centre de Géomorphologie].
Lautridou, J.P., *Inter-nord*, Dec. 1978, No.15, p.5-13, In French with English summary.
Soil freezing, Freezing rate, Frost action, Compressive properties, Porosity, Permeability, Capillarity, Models.

34-2025
Freezing of porous media and problems posed by frost action. [Congélation des milieux poreux et problèmes posés par la gélifraction].
Aguirre-Puente, J., *Inter-nord*, Dec. 1978, No.15, p.15-43, In French with English summary. 75 refs.
Soil freezing, Porous materials, Frost action, Frozen rocks, Geomorphology, Mathematical models.

34-2026
Voyage of the *Arktika* to the Pole and its geo-economical implications. [L'exploit de l'Arktika au Pôle. Conséquences geo-économiques].
Malaurie, J., *Inter-nord*, Dec. 1978, No.15, p.205-208, In French with English summary. 5 refs.
Icebreakers, Route surveys, Ice navigation, Polar regions, Economic analysis.

34-2027
Northern sea route (1973-1976).
Armstrong, T., *Inter-nord*, Dec. 1978, No.15, p.264-268.
Route surveys, Ice conditions, Icebreakers, Polar regions.

34-2028
Glaciology and glacial and periglacial morphology of Fennoscandia and Iceland. [Glaciologie et morphologie glaciaire et périglaciaire de la Fennoscandie et de l'Islande].
Biays, P., *Inter-nord*, Dec. 1978, No.15, p.268-277, In French. 48 refs.
Glaciology, Periglacial processes, Geomorphology.

34-2029
Recent fluctuations of glaciation in the Alps. [Les fluctuations récentes de la glaciation dans les Hautes-Alpes].
Vivian, R., *Inter-nord*, Dec. 1978, No.15, p.277-279, In French.
Glacier oscillation, Glaciation, Periodic variations, Climatic factors.

34-2030
Glacial erosion: methodological problems. [Erosion glaciaire: problèmes de méthode].
Vivian, R., *Inter-nord*, Dec. 1978, No.15, p.279-283, In French.
Glacial erosion, Glacial hydrology, Glacier flow, Water erosion.

34-2031
Sea ice in the Arctic. [Les glaces marines dans l'Arctique].
Moign, A., *Inter-nord*, Dec. 1978, No.15, p.283-288, In French. 21 refs.
Sea ice, Ice conditions, Oil spills, Remote sensing, ERTS imagery.

34-2032
Ice caves and permafrost zones in southwest Alberta.
Harris, S.A., *Erdkunde*, Mar. 1979, 33(1), p.61-70, In English with German summary. 20 refs.
Ice caves, Permafrost distribution, Glacial geology, Canada—Alberta.

34-2033
Winter roof collapses: bad luck, bad construction or bad design.
Seltz-Petrash, A., *Civil engineering*, Dec. 1979, 49(12), p.42-45.
Roofs, Snow loads, Snowdrifts.

34-2034
Winter roads and ice bridges.
Lefebvre, L.M., *Civil engineering*, Dec. 1979, 49(12), p.54-57.
Ice roads, Ice crossings, Snow roads, Economic development, Cost analysis.

34-2035
Antarctic ice topography and 150 mb circulation from the NIMBUS-6 TWERLE experiment.
Levanon, N., et al, *Space research*, 1978, Vol.18, Proceedings of the Open Meetings of the Working Groups on Physical Sciences, 20th Plenary Meeting of COSPAR, Tel Aviv, Israel, 7-18 June 1977, p.43-46, 3 refs.
Julian, P.R., Suomi, V.E.
DNASA, QC801.144 1977
Ice surface, Topographic features, Meteorological factors, Altitude.

New data on antarctic ice surface elevation are now available from many constant density balloons, floating at altitude of about 12.5 km, which traversed the Antarctic during its 1975-76 summer. They were part of 411 balloons launched in the southern hemisphere during the Tropical Wind Energy conversion and Reference Level Experiment (TWERLE). Each balloon carries three sensors: radio altimeter, pressure sensor and ambient temperature sensor. The data are received by the Random Access Measuring System (RAMS) on board the NIMBUS-6 satellite, whenever the balloon is within line of sight. The near Polar orbit of NIMBUS-6, and the continuous day at the Pole combined to allow continuous coverage of TWERLE balloons, south of 66S, during Dec. 1975 and Jan. 1976.

34-2036
Proceedings.
Symposium on Research in the Labrador Coastal and Offshore Region, May 8-10, 1979, St. John's, Memorial University of Newfoundland, [1979], 291p., Refs. passim. For selected papers see 34-2037 through 34-2040.
Oceanography, Ocean currents, Water temperature, Salinity, Ice solid interface, Wind factors.

34-2037
Sediment transport by intertidal ice.
Rosen, P.S., Symposium on Research in the Labrador Coastal and Offshore Region, May 8-10, 1979. Proceedings, St. John's, Memorial University of Newfoundland, 1979, p.133-147, 3 refs.
Sediment transport, Ice solid interface, Coastal topographic features, Ice erosion, Ice breakup, Wind factors, Tides.

34-2038
Experimental oilspills.
Metge, M., et al, Symposium on Research in the Labrador Coastal and Offshore Region, May 8-10, 1979. Proceedings, St. John's, Memorial University of Newfoundland, 1979, p.184-189.
Thornton, D.E.
Oil spills, Ocean environments, Pack ice, Experimentation, Marine biology.

34-2039
Recent oceanographic observations in the Labrador current.
Lazier, J.R.N., Symposium on Research in the Labrador Coastal and Offshore Region, May 8-10, 1979. Proceedings, St. John's, Memorial University of Newfoundland, 1979, p.195-204, 7 refs.
Ocean currents, Oceanographic surveys, Water temperature, Salinity.

34-2040
Geostrophic calculations for the Labrador current.
Keeley, J.R., Symposium on Research in the Labrador Coastal and Offshore Region, May 8-10, 1979. Proceedings, St. John's, Memorial University of Newfoundland, 1979, p.201-218, 16 refs.
Ocean currents, Water temperature, Salinity, Oceanographic surveys, Velocity, Wind factors.

34-2041
Soil-ice system and the shear strength of frozen soils.
Goughnour, R.R., East Lansing, Michigan State University, 1967, 153p., University Microfilms order No.68-7894, Ph.D. thesis. For abstract see Dissertation abstracts international, Sec.B, June 1968, p.5003-5004.
Ice solid interface, Shear strength, Frozen ground strength, Frozen ground mechanics, Creep, Rheology, Ice crystals, Deformation.

34-2042
Growth of tundra vegetation in relation to Arctic microenvironments at Barrow, Alaska.
Dennis, J.G., Durham, N.C., Duke University, 1969, 305p., University Microfilms order No.69-22,060, Ph.D. thesis. For abstract see Dissertation abstracts international, Sec B, Dec. 1969, p.2560-2561.
Tundra, Growth, Plant ecology, Plant physiology, Thaw depth, Environments, Permafrost, Air temperature, Wind velocity, Soil water.

34-2043
Correlation and quantification of airborne spectrometer data to turbidity measurements at Lake Powell, Utah.
Merry, C.J., MP 1271, International Symposium on Remote Sensing of Environment, 13th, Ann Arbor, Michigan, April 23-27, 1979. Proceedings, Environmental Research Institute of Michigan, 1979, p.1309-1316, 7 refs.
Lake water, Turbidity, Suspended sediments, Light transmission, Aerial surveys, Spectroscopy.

A water sampling program was accomplished at Lake Powell, Utah, during June 1975 for correlation to multispectral data obtained with a 500-channel airborne spectroradiometer. Field measurements were taken of percentage of light transmittance, surface temperature, pH and Secchi disk depth. Percentage of light transmittance was also measured in the labora-

tory for the water samples. Analyses of electron micrographs and suspended sediment concentration data for four water samples located at Hite Bridge, Mile 168, Mile 150 and Bullfrog Bay indicated differences in the composition and concentration of the particulate matter. Airborne spectroradiometer multispectral data were analyzed for the four sampling locations. The results showed that (a) as the percentage of light transmittance of the water samples decreased, the reflected radiance increased, and (b) as the suspended sediment concentration (mg/l) increased, the reflected radiance increased in the 1-80 mg/l range. In conclusion, valuable qualitative information was obtained on surface turbidity for the Lake Powell water spectra. Also, the reflected radiance measured at a wavelength of 0.58 micron was directly correlated to the suspended sediment concentration.

34-2044
Tidal flat erosion by ice at La Pocatiere, St. Lawrence estuary.
Dionne, J.-C., *Journal of sedimentary petrology*, Sep. 1969, 39(3), p.1174-1181, 22 refs.
Shore erosion, River ice, Fast ice, Estuaries.

34-2045
Pollution potential of manure spread on frozen ground.
Young, R.A., et al, *Journal of environmental quality*, 1976, 5(2), p.174-179, 7 refs.
Mutchler, C.K.
Soil pollution.

34-2046
Radiative melting of ice layer adhering to a vertical surface.
Sedi, N., et al, *Wärme- und Stoffübertragung*, 1979, Vol.12, p.137-144, In English with German summary. 7 refs.
Sugawara, M., Fukusako, S.
Ice melting, Heat transfer, Mathematical models, Thermal radiation.

34-2047
Rupture of an ice mound near Cape Dorset, N.W.T.
Frederking, R.M.W., *Canadian geotechnical journal*, Aug. 1979, 16(3), p.604-609, In English with French summary. 4 refs.
Lake ice, Frost mounds, Ice structure, Thermal stresses, Ice breakup.

34-2048
Artificial freezing technique of increasing bottom zone permeability in gas-condensate wells of the Far North. [O vozmozhnosti uvelicheniia pronitsaemosti prizaboĭnoĭ zony skvazhin kholodom na gazokondensatnykh mestorozhdeniiakh Kraĭnego Severa].
Govdun, V.V., *Razvedka i razrabotka neftianykh i gazovykh mestorozhdeniĭ*, 1979, Vol.16, p.11-13, In Russian. 4 refs.
Gas wells, Sands, Permeability, Frost shattering.

34-2049
Causes of the values of winter pressure of ground on walls of solid-bottom sluice chambers, exceeding the design values. [O prichinakh prevysheniia zimnego davleniia grunta na kamernye steny shliuzov so sploshnymi dnishchami nad raschetnym ego znacheniem].
Avdeeva, V.I., *Moscow. Inzhenerno-stroitel'nyĭ institut. Sbornik trudov*, 1979, Vol.16, p.98-105, In Russian. 9 refs.
Sluices (hydraulic engineering), Walls, Pressure, Ground ice.

34-2050
Mudflow sources in the Ukrainian Carpathians. [Selevye ochagi v Ukrainskikh Karpatakh].
Aĭzenberg, M.M., et al, *Kiev. Ukrainskiĭ nauchno-issledovatel'skiĭ gidrometeorologicheskiĭ institut. Trudy*, 1979, Vol.162, p.64-70, In Russian. 10 refs.
Lundin, S.M., Semenikhina, A.S., IAblonskiĭ, V.V.
Slope processes, Landslides, Mudflows, Snow cover effect, Wet snow, Avalanches.

34-2051
Allowing for mudflows and snow avalanches when designing and building the Orenburg-west USSR boundary gas pipeline. [Ob uchete sele-lavinnoĭ deiatel'nosti v Ukrainskikh Karpatakh pri proektirovanii i stroitel'stve gazoprovoda Orenburg-zapadnaia granitsa SSSR].
Aĭzenberg, M.M., et al, *Kiev. Ukrainskiĭ nauchno-issledovatel'skiĭ gidrometeorologicheskiĭ institut. Trudy*, 1978, Vol.162, p.75-85, In Russian. 14 refs.
Grishchenko, V.F., Lundin, S.M., IAblonskiĭ, V.V.
Gas pipelines, Mountains, Slope processes, Mudflows, Avalanches, Design.

34-2052
Heavy snowfalls and avalanches in the 1975-76 winter season in the Ukrainian Carpathian. [Obil'nye snegopady i laviny zimoĭ 1975/76 gg. v Ukrainskikh karpatakh].
Grishchenko, V.F., et al, *Kiev. Ukrainskiĭ nauchno-issledovatel'skiĭ gidrometeorologicheskiĭ institut. Trudy*, 1978, Vol.162, p.86-90.
Tokmakov, IU.A.
Snow depth, Avalanche formation, Avalanche triggering, USSR—Carpathian Mountains.

34-2053
Hydrogeological conditions of paluded lands in the Ust'-Selenga trough. [Gidrogeologicheskie usloviia zabolochennykh zemel' Ust'Selenginskoĭ vpadiny].
Adushinov, A.A., *Akademiia nauk SSSR. Sibirskoe otdelenie. Buriatskiĭ filial. Geologicheskiĭ institut. Trudy*, 1976, 6(14), p.27-35, In Russian. 5 refs.
Deltas, USSR—Selenga River, USSR—Baykal Lake.

34-2054
Hydrogeologic and geocryological conditions of the Barguzin trough and land reclamation. [Gidrogeologicheskie i geokriologicheskie usloviia Barguzinskoĭ vpadiny v sviazi s melioratsieĭ zemel'].
Adushinov, A.A., et al, *Akademiia nauk SSR. Sibirskoe otdelenie. Buriatskiĭ filial. Geologicheskiĭ institut. Trudy*, 1076, 6(14), p.36-59, In Russian. 4 refs.
Zamana, L.V.
Land reclamation, Permafrost weathering, Paludification, Permafrost hydrology.

34-2055
Calculating water balance of the Kola River basin. [Raschet vodnogo balansa basseĭna r. Koly].
Antonova, T.S., *Leningrad. Gosudarstvennyĭ gidrologicheskiĭ institut. Trudy*, 1979, Vol.260, p.107-119, In Russian. 4 refs.
River basins, Water balance, Snow cover distribution, Snow water equivalent, Swamps, Lakes.

34-2056
Rock fill stability on embankment slopes. [Ustoĭchivost' kamennoĭ nabroski na otkose nasypi].
Matveev, K.V., et al, *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1977, Vol.580, p.80-87, In Russian. 2 refs.
Pisarev, IU.V.
Embankments, Rock fills, Permafrost beneath structures, Slope stability, Baykal Amur railroad, Design.

34-2057
All-Union scientific-technical conference on the engineering-geological basis of seismic microregionalization, 1st, Tashkent, Nov. 18-20, 1987. Summaries of reports. [Tezisy dokladov].
Vsesoiuznoe nauchno-tekhnicheskoe soveshchanie Inzhenerno-geologicheskaia osnova seismicheskogo mikroraĭonirovaniia, 1st, Tashkent, Nov. 18-20, 1975, Tashkent, Fan, 1975, 98p, In Russian. For selected summaries see 34-2058 through 34-2063.
Mavlianov, G.A., ed.
DLC TA705.P42
Earthquakes, Permafrost physics, Geophysical surveys, Ground ice, Permafrost structure, Permafrost forecasting, Electromagnetic prospecting, Mapping, Loess, Thixotropy, Slope stability.

34-2058
Dependence of permafrost seismicity on ground ice content. [Zavisimost' seĭsmicheskoĭ opasnosti merzlykh gruntov ot ikh l'distosti].
Dzhurik, V.I., Vsesoiuznoe nauchno-tekhnicheskoe soveshchanie Inzhenerno-geologicheskaia osnova seismicheskogo mikroraĭonirovaniia, 1st, Tashkent, Nov. 18-20, 1975. Tezisy dokladov (All-Union scientific-technical conference on the engineering-geological basis of seismic microregionaliztion, 1st, Tashkent, Nov. 18-20, 1975. Summaries of reports) edited by G.A. Mavlianov, Tashkent, Fan, 1975, p.24-25, In Russian.
DLC TA705.P42
Permafrost physics, Frozen rock temperature, Permafrost structure, Ground ice, Earthquakes.

34-2059
Engineering and geological studies for seismic microregionalization of permafrost areas. [Osobennosti inzhenerno-geologicheskikh issledovaniĭ pri seismicheskom mikroraĭonirovanii v usloviiakh vechnoĭ merzloty].
Zarubin, N.E., Vsesoiuznoe nauchno-tekhnicheskoe soveshchanie Inzhenerno-geologicheskaia osnova seismicheskogo mikroraĭonirovaniia, 1st, Tashkent, Nov. 18-20, 1975. Tezisy dokladov (All-Union scientific-technical conference on the engineering-geological basis of seismic microregionaliztion, 1st, Tashkent, Nov. 18-20, 1975. Summaries of reports) edited by G.A. Mavlianov, Tashkent, Fan, 1975, p.59-60, In Russian.
DLC TA705.P42
Continuous permafrost, Permafrost structure, Permafrost thickness, Permafrost physics, Earthquakes, Forecasting.

34-2060
Using integrated geophysical methods for evaluating earthquake danger in permafrost areas. [Primenenie kompleksnykh geofizicheskikh metodov dlia otsenki seismicheskoĭ opasnosti vechnomerzlykh gruntov].
Pavlov, O.V., et al, Vsesoiuznoe nauchno-tekhnicheskoe soveshchanie Inzhenerno-geologicheskaia osnova seismicheskogo mikroraĭonirovaniia, 1st, Tashkent, Nov. 18-20, 1975. Tezisy dokladov (All-Union scientific-technical conference on the engineering-geological basis of seismic microregionaliztion, 1st, Tashkent, Nov. 18-20, 1975. Summaries of reports) edited by G.A. Mavlianov, Tashkent, Fan, 1975, p.66-67, In Russian.
Pavlenov, V.A., Dzhurik, V.I.
DLC TA705.P42
Geophysical surveys, Earthquakes, Permafrost physics, Permafrost forecasting, Baykal Amur railroad.

34-2061
Using electric survey data in seismic microregionalization of permafrost areas. [Ispol'zovanie elektrorazvedochnykh dannykh pri seismicheskom mikroraĭonirovanii territoriĭ s merzlymi porodami].
Basov, A.D., et al, Vsesoiuznoe nauchno-tekhnicheskoe soveshchanie Inzhenerno-geologicheskaia osnova seismicheskogo mikroraĭonirovaniia, 1st, Tashkent, Nov. 18-20, 1975. Tezisy dokladov (All-Union scientific-technical conference on the engineering-geological basis of seismic microregionaliztion, 1st, Tashkent, Nov. 18-20, 1975. Summaries of reports) edited by G.A. Mavlianov, Tashkent, Fan, 1975, p.67-68, In Russian.
Leshchikov, F.N.
DLC TA705.P42
Permafrost, Electromagnetic prospecting, Permafrost structure, Geophysical surveys, Earthquakes, Mapping.

34-2062
Composition and properties of flooded loess as a basis for seismic microregionalization. [Dinamika sostava i svoĭstv lessovykh porod pri zatoplenii kak osnova prognoza seismicheskogo mikroraĭonirovaniia].
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Progress achieved during the 6th sea[illegible]on of an airborne radio echo sounding program [illegible] by the Scott Polar Research Institute in cooperation [illegible] National Science Foundation Division of Polar Programs [illegible] Electromagnetics Institute of the Technical University [illegible]enmark is reported. Broad aims of the program are to [illegible] and complete a 100 km grid network over Antarctica [illegible] study [illegible] surface form, thickness, internal structure, rheology, thermodynamics, electrical properties, basal conditions and processes (including sub-ice water bodies, melting and freezing beneath ice shelves), and sub-ice geology. With completion of the 1978-79 season, the radio echo sounding coverage of Antarctica is estimated to be 50% under the NSF-SPRI-IUD program, 14% by other groups, and 36% still awaiting coverage. Equipment used and operations conducted by the NSF-SPRI-IUD program in 1978-79 are described and scientific results are outlined.

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34-2128
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34-2130
Influence of loose deposits on radioactive anomalies in mountain taiga. [O vliianii moshchnosti rykhlykh otlozhenii na parametry radioaktivnykh anomalii v usloviiakh gornoi taigi].
Zima, A.F., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Geologiia i razvedka,* July 1979, No.7, p.103-110, In Russian. 7 refs.
Serdiukova, A.S., Skosyrev, V.N., Blinnikov, IU.V.
Taiga, Slope processes, Sediment transport, Radioactivity, Landscape types, Mountains.

34-2131
Classification of cryogenic structures in the aeration zone of peat deposits. [Klassifikatsiia kriogennykh tekstur v zone aeratsii torfianoi zalezhi].
Kmitovenko, A.T., et al, *Gornyi zhurnal,* 1979, No.7, p.8-11, In Russian. 3 refs.
Zelenskii, A.IA., Balabolin, V.G.
Peat, Frost penetration, Cryogenic structures, Soil water migration, Ice formation, Ground ice, Classifications.

34-2132
Determining parameters of the mechanical dehydration of frozen peat in high bogs. [Opredelenie parametrov protsessa mekhanicheskogo obezvozhivaniia merzlogo torfa verkhovogo tipa].
Kmitovenko, A.T., et al, *Gornyi zhurnal,* 1979, No.10, p.18-19, In Russian.
Aleksandrov, B.M., Sherstnev, V.I.
Swamps, Drying, Peat, Ground ice, Frozen ground, Compressive properties.

34-2133
Part 1. The effect of temperature and partial melting on velocity and attenuation in a simple binary system. Part. 2. Effect of temperature and pressure on elastic properties of polycrystalline and single crystal MgO.
Spetzler, H.A.W., Pasadena, California Institute of Technology, 1969, 258p., University Microfilms order No.70-1421, Ph.D. thesis. For abstract see Dissertation abstracts international, Sec. B, Jan. 1970, p.3349. For short version of Pt. 1 see 26-2526.
Ice crystals, Ice melting, Temperature effects, Attenuation, Seismic velocity, Earth crust.

34-2134
Water resources development.
U.S. Army Corps of Engineers. Alaska District, Anchorage, Alaska District, Corps of Engineers, Jan. 1979, 50p., A biennial report as of January 1, 1979.
Water reserves, Navigation, Flood control, Research projects, United States—Alaska.

34-2135
Antarctic operations, Nov. 1977-Feb. 1978. [Campagne en Antarctique Novembre 1977-Février 1978].
Lorius, C., et al, Paris, Centre National de la Recherche Scientifique, 1978, 10p., In French. 13 refs.
Donnou, D.
Ice cores, Ice coring drills, Ice sheets, Ice dating, Climatology, Gas inclusions, Isotope analysis, Antarctica—East Antarctica.
During the 1977-1978 season the French drilled a core at Dome C to shed light on the climatic history of Antarctica as part of the international glaciological program. The techniques and equipment used are discussed and shown in figures and photographs. Initial results are presented by considering the various indicators gas inclusions, crystal structure, impurities and isotopes in the ice of climatic changes.

34-2136
Inventory of snow cover and sea ice data.
Crane, R.G., comp., *World Data Center A for Glaciology (Snow and Ice). Report,* Dec. 1979, GD-7, 171p., Numerous refs. passim.
Data processing, Sea ice, Snow surveys.
The survey lists U.S. and foreign agencies which collect and organize snow and sea ice information; the kinds of products resulting from agency surveys; users of the products, sources, accuracy, availability, and period of current and historical data; product frequency, period, and area covered. Limited Southern Hemisphere data includes sea ice information around Antarctica.

34-2137
Research and development work in the Division of Mechanical Engineering 1978. Ottawa, Canada, National Research Council [1979], 88p., This publication is also available in French.
Research projects, Transportation, Railroads, Roads, Marine transportation.

34-2138
Project: stamp out scaling.
McFadden, J.E., *Concrete construction,* Feb.1980, 25(2), p.139-144.
Concrete durability, Chemical ice prevention, Air entrainment.

34-2139
Effect of prefreezing on the strength and deformation properties of granular soils.
Frydman, S., et al, *Soils and foundations,* Dec. 1979, 19(4), p.31-42, 9 refs.
Melnik, J., Baker, R.
Soil freezing, Core samplers, Soil strength, Freeze thaw tests, Soil deformation, Artificial freezing.

34-2140
How to drill and produce in the Beaufort Sea.
Bleakley, W.B., *Petroleum engineer international,* Feb. 1980, 52(2), p.23-32.
Sea ice, Offshore drilling, Artificial islands, Ice pileup, Slope protection.

34-2141
Presentation of sea ice ridges in general and physical characteristics of Baltic ridges for ship resistance calculations.
Keinonen, A., *Helsinki/Stockholm. Winter Navigation Research Board. Research report,* Apr. 1978, No.24, 19p. + 14 figs., 21 refs.
Sea ice, Pressure ridges, Ice structure, Ice navigation, Ice friction.

34-2142
Potential interactions between pipelines and terrain in a northern environment.
Van Everdingen, R.O., *Canada. Inland Waters Directorate. National Hydrology Research Institute. Paper,* 1979, No.8, 7p., In English with French summary. 6 refs.
Pipelines, Environmental impact.

34-2143
Ice and landing surface demoulding—replica fabrication.
Lundström, G., *Ulvsunda, Sweden. Flygtekniska försöksanstalten. FFA memorandum,* July 1973, No.90, 12p., 8 refs.
Replicas, Runways, Icing.

34-2144
Comparative mechanisms of cold adaptation.
Underwood, L.S., ed, American Institute of Biological Sciences. Annual Meeting, 28th, East Lansing, Michigan, Aug. 1977. Proceedings, New York, Academic Press, 1979, 379p., Contains 12 papers with discussions.
Tieszen, L.L., ed, Callahan, A.B., ed, Folk, G.E., ed
DLC QP82.2C6C64
Tundra, Plants (botany), Cold tolerance, Models.

34-2145
Proceedings.
Symposium on Antarctic Meteorology and Glaciology, 1st, Tokyo, Dec. 1978, *Antarctic record,* Oct 1979, No.67, 180p., In English or Japanese. Refs.
Glaciology, Meetings.
The conference was held at the National Institute of Polar Research with the aim of summarizing and evaluating all recent meteorological and glaciological work done by JARE under the POLEX program. The volume contains 5 papers in glaciology, 5 in meteorology, 2 in cloud physics, and 3 on oxygen isotope studies. The primary concern of contributors was the interaction between the atmosphere and cryosphere at and near the air-ice interface in inland Antarctica. Some observations in coastal areas are included.

34-2146
Summary of glaciological studies in Mizuho Plateau, East Antarctica, 1969-1975.
Ishida, T., *Antarctic record,* Oct. 1979, No.67, p.1-10, In Japanese with English summary. Refs. p.5-10.
Ice sheets, Glaciology, Research projects, Antarctica—Mizuho Plateau.
A summary report of the traverse glaciology project accomplished by the Japanese Antarctic Research Expedition in 1969-1975 was published in 1978 under the title of "Glaciological Studies in Mizuho Plateau, East Antarctica, 1969-1975" as a special issue of Memoirs of National Institute of Polar Research, No.7. (See 32-2701 or F-19819). This paper outlines that summary report.

34-2147
Growth rates of crystal grains in snow at Mizuho Station, Antarctica.
Narita, H., et al, *Antarctic record,* Oct. 1979, No.67, p.11-17, 16 refs.
Maeno, N.
Snow crystal growth, Snow accumulation, Climatology, Antarctica—Mizuho Plateau.
Measurements of the mean cross-sectional area of crystal grains in snow were made with core samples drilled at Mizuho Station, Antarctica. It was found that the cross-sectional area of crystal grains in snow increased with increasing depth to a depth of about 50 m. The relationship between the cross-sectional area of crystal grains and the time elapsed was essentially linear, but the growth rate of crystal grains was larger in snow at depths below 35 m. The increase in the growth rate can be attributed to the stress-enhancement or the smaller rate of snow accumulation. From the growth rate of crystal grains in snow above 35 m, the net accumulation rate at Mizuho Station was estimated to be roughly 70 kg/sq m/a. (Auth.)

34-2148
Compactive viscosity of snow and its climatic implications at Mizuho Station, Antarctica.
Maeno, N., et al, *Antarctic record,* Oct. 1979, No.67, p.18-31, Refs. p.30-31.
Narita, H.
Snow accumulation, Snow compaction, Climatology, Viscosity, Snow density, Snow physics, Antarctica—Mizuho Plateau, Antarctica—Byrd Station, Antarctica—Little America V.
The compactive viscosity coefficient of snow was obtained from a density profile at Mizuho Station. The value of the compactive viscosity coefficient was by two orders of magnitude larger than that of ordinary seasonal snow. The large value was attributed to strong bonds between constituent ice particles within antarctic snow which had been aged for prolonged periods. A sharp peak of the compactive viscosity coefficient was found in a limited range of the depth around 35 m that is in a range of the density around 750 kg/cu m. In the depth range from 30 m to 40 m the layer-to-layer densities varied largely and the mean density deviated markedly from a smoothed general trend. These results suggest that a colder climate occurred repeatedly and lasted approximately 300 years before the present in the vicinity of Mizuho Station. (Auth.)

34-2149
Some problems in stratigraphic analysis of firn in Mizuho Plateau, East Antarctica.
Watanabe, O., et al, *Antarctic record,* Oct. 1979, No.67, p.32-50, In Japanese with English summary. 16 refs.
Kato, K., Satow, K.
Firn, Snow accumulation, Isotope analysis, Firn stratification, Oxygen isotopes, Radioactive isotopes, Stratigraphy, Climatology, Antarctica—Mizuho Plateau.
Long-term variations in precipitation and surface temperature near Mizuho Station were studied by means of stratigraphic analyses of 150-m boring core. In this paper, some problems on snow stratigraphy concerning the analyses are discussed

First, problems on the unit of stratification are discussed in relation to visible stratigraphic elements and deposition-erosion processes. Second, phenomena of a missing layer corresponding to the hiatus in the layer formation are discussed in relation to regional characteristics and frequency of those occurrences. Precise estimation of mean annual accumulation in a certain period may be impossible without a quantitative rating of hiatus duration, and establishment of an effective method of rating should be the most important subject for the stratigraphic study. Delta-18-oxygen vertical profiles in snow layer are investigated, using the data obtained from a high-accumulation area in terms of reconsideration of the classical interpretation. As a result, it is found that a part of delta-18-oxygen oscillation was due to the variation by isotopic discrimination under snow metamorphism. (Auth.)

34-2150

Sublimation and condensation at the ice sheet surface of Mizuho Station, Antarctica.

Fujii, Y., *Antarctic record,* Oct. 1979, No.67, p.51-63, 6 refs.

Ice sheets, Ice air interface, Sublimation, Ice sublimation, Condensation, Ice surface, Glacier mass balance, Antarctica—Mizuho Plateau.

Sublimation and condensation were estimated by three different methods, that is, atmometer, bulk formula and stake methods, at Mizuho Station from Feb. 1977 to Jan. 1978. The comparison of the three different methods of obtaining the sublimation rate in the summer of 1977-1978 showed a satisfactory agreement, especially in the weekly values. Condensation prevails from the middle of April to the middle of September and sublimation in the remaining seven months. The daily amount of sublimation showed its maximum, 92 mg/sq cm, on December 22 when solar radiation was at a maximum. The annual amounts of sublimation and condensation are estimated to be 4.92 g/sq cm and 0.19 g/sq cm, respectively. The present study implies that sublimation plays an important role in the heat and mass exchanges at the surface and in the metamorphism of surface texture. (Auth.)

34-2151

Numerical simulation of katabatic wind profile at Syowa Station, Antarctica.

Adachi, T., *Antarctic record,* Oct. 1979, No.67, p.64-74, 14 refs.

Wind (meteorology), Glacial meteorology, Antarctica—Showa Station.

The vertical profiles of the strong katabatic winds at Syowa Station, Antarctica, are studied. A numerical solution of the equations of the Ekman layer above the antarctic coastal slope is obtained. It is shown that the results of the numerical simulation of the strong katabatic wind profile agree well with the observed strong katabatic wind profiles at Showa Station. (Auth. mod.)

34-2152

Some characteristics of turbulence in katabatic winds over Mizuho Plateau, East Antarctica.

Kobayashi, S., et al, *Antarctic record,* Oct. 1979, No.67, p.75-85, 20 refs.

Ishida, T.

Wind (meteorology), Snow surface, Surface roughness, Turbulence, Antarctica—Mizuho Plateau.

Wind turbulence was observed, using sonic anemometers, on a snow surface at Mizuho Station and on a bare ice field near the Yamato Mountains in the Mizuho Plateau in 1973 by the party of the 14th Japanese Antarctic Research Expedition. Observations revealed, as to katabatic winds blowing above the two places, that the one above the latter is characterized by the presence of a hydraulic jump generated by nunataks there, resulting in a stronger turbulence than the one above the former which is stationary. Hence, a comparison is made in this paper between characteristics of turbulence and a hydraulic jump in a katabatic wind. (Auth.)

34-2153

Preliminary study on the structure of the atmospheric surface layer in Mizuho Plateau, East Antarctica.

Sasaki, H., *Antarctic record,* Oct. 1979, No.67, p.86-100, 11 refs.

Glacial meteorology, Temperature gradients, Wind (meteorology), Antarctica—Mizuho Plateau.

A preliminary study on the structure of the atmospheric surface layer in Mizuho Plateau was made, based on the profiles and fluctuations of wind and air temperature observed at Mizuho Station during the period June-Dec. 1972. The results are summarized. High frequency of slightly stable conditions and low frequency of unstable conditions were a characteristic feature. Mean value of roughness length was 0.24 cm, larger by one order than the values at Showa Station and the South Pole. The distributions of the power spectra of wind and temperature fluctuations and those of the cospectra of heat flux were similar to the results reported by many investigators. Temperature oscillations, which seemed to be caused by internal wave motions, were observed in winter. (Auth.)

34-2154

Oxygen isotopic composition of fallen snow in Antarctica.

Kato, K., *Antarctic record,* Oct. 1979, No.67, p.124-135, 14 refs. In Japanese with English summary.

Oxygen isotopes, Isotope analysis, Snow composition, Precipitation (meteorology), Antarctica—Showa Station.

The relationship between the oxygen isotopic composition of fallen snow at Showa Station and the transportation process of water vapor to the antarctic ice sheet has been investigated. It is found that the oxygen isotopic composition of fallen snow is largely controlled by the supply of oxygen-18-rich water vapor resulting from the approach of a circumpolar cyclone, and is closely related to the distance between the open sea and the sampling station. Taking into consideration the transportation process of water vapor to the antarctic ice sheet, the correlation between the temperature of formation and the oxygen isotopic composition of fallen snow provides information about the formation process of snow. The correlation between the monthly means of the oxygen isotopic composition of fallen snow and the surface air temperature also provides information about the formation process of snow. (Auth.)

34-2155

Oxygen isotopic composition of drifting snow in Mizuho Plateau, Antarctica.

Kato, K., et al, *Antarctic record,* Oct. 1979, No.67, p.136-151, 19 refs. In Japanese with English summary.

Watanabe, O., Satow, K.

Oxygen isotopes, Isotope analysis, Snow composition, Climatic factors, Wind factors, Antarctica—Mizuho Plateau.

Oxygen isotopic composition of drifting snow sampled at the various stations along the traverse routes in Mizuho Plateau was determined in order to investigate transportation of water vapor to antarctic ice sheet resulting from the approach of a circumpolar cyclone. The oxygen isotopic composition of drifting snow in every season at the stations below 1800 m in altitude is largely controlled by the supply of oxygen-18-rich water vapor resulting from the approach of a circumpolar cyclone, but it is not so at the stations above 2000 m. A large anomaly is found in the variation with altitude of oxygen isotopic composition of drifting snow at the stations at altitudes between 3100 and 3200 m in (austral) spring. The area where the anomaly is found is the boundary between the spheres of influence of circumpolar cyclones and antarctic anticyclones, and it changes its position seasonally. In winter, Mizuho Station (2230 m in altitude) is considered to be hardly influenced by circumpolar cyclones. (Auth.)

34-2156

Oxygen isotopic composition of snow formed under an antarctic anticyclone.

Kato, K., et al, *Antarctic record,* Oct. 1979, No.67, p.152-163, In Japanese with English summary. 21 refs.

Higuchi, K.

Oxygen isotopes, Isotope analysis, Snow composition, Precipitation (meteorology), Climatic factors, Wind factors, Antarctica—Mizuho Plateau.

In order to investigate the formation process of snow under an antarctic anticyclone and the transportation process of water vapor into the anticyclone, the oxygen isotopic composition of fallen snow at Showa Station and drifting snow and firn in Mizuho Plateau was determined. Fallen snow at Showa Station is formed by the isobaric cooling process from a cloud layer under the upper inversion. Water vapor is transported to the antarctic anticyclone and subsides in it. Snow is formed by the isobaric cooling process under the subsidence inversion. The surface air temperature is much lower than the temperature of formation of snow. Therefore, on ice sheet, water vapor moves from fallen snow to surface snow. The systematic decrease of oxygen isotopic composition of snow with depth is formed in the snow cover with well-developed depth-hoar of upward crystal growth under the influence of an antarctic anticyclone, whereas the systematic increase results from depth-hoar with downward crystal growth under the influence of a circumpolar cyclone. (Auth.)

34-2157

Axial flow wind air-turbine NU-102 with electric eddy-current brake.

Awano, S., et al, *Tokyo. National Institute of Polar Research. Memoirs. Series F, Logistics,* Oct. 1979, No.3, 57p., 2 refs.

Murayama, M., Takeuchi, S.

Electric power, Wind power generation, Antarctica—Showa Station.

A new axial-flow wind air-turbine NU-102, having an external diameter of 1.2 m, was developed in 1977 by the authors for harnessing the energy of high speed winds in Antarctica. This multi-blade wind-turbine is featured by the presence of a stator before the rotor, which enables the turbine to give a higher power, a higher torque at a lower rotational speed than an ordinary wind air-turbine. A 3-kW AC-DC generator is driven by the air-turbine through a planetary speed-up gear of speed ratio 6. The rotational speed of this generator can automatically be kept at a desired value, even in violent blizzards by means of an electric eddy-current brake newly developed by the authors. The brake also affords a new means for converting the wind energy directly into heat through the liquid heated in the jacket of the brake-stator. The present report describes the design of the whole system, the general performance of the air-turbine, and the combined performance of the wind-turbine and generator evaluated in wind-tunnel tests and field tests at Showa Station. The field tests have proved that a generator output of 2.4 kW can be obtained at a wind velocity of 30 m/s, and that the rotational speed of the generator can be kept at a desired value for variable loads and wind velocities exceeding 30 m/s. (Auth.)

34-2158

Earth science investigations in the United States Antarctic Research Program (USARP) for the period July 1, 1978-June 30, 1979.

Craddock, C., comp, Washington, National Academy of Sciences, 1979, 50p., Refs.

National Research Council. Polar Research Board.

Research projects, Bibliographies, Ice sheets, Glacial geology.

This is the eleventh in a series of annual reports on work in the earth sciences carried out as a part of the U.S. Antarctic Research Program. The material is arranged alphabetically by investigator, with affiliation, laboratory and field work, publications issued or in press, and future programs. Two tables of contents are provided: one arranged alphabetically by investigator, and the other by institution.

34-2159

Report on United States antarctic research activities for February 1976-October 1977; United States antarctic research activities planned for October 1977-September 1978.

National Research Council. Polar Research Board, *National Academy of Sciences-National Research Council. Report to SCAR,* June 1977, No.19, 77p., Refs. p.55-65.

Research projects, Antarctica.

Information is presented on the U.S. Antarctic Research Program completed during the period Feb. 1976 to Mar. 1977, in progress from Mar. 1977 to Oct. 1977, and planned for Oct. 1977 through Sep. 1978. Research activities in the fields of atmospheric sciences, earth sciences, and biology are summarized, as well as research vessel operations, and information activities. U.S. stations and scientific personnel, World Data Center A subcenters, and members of the Polar Research Board and SCAR working groups are listed. A bibliography is included.

34-2160

Report on United States antarctic research activities for February 1977-October 1978; United States antarctic research activities planned for October 1978-September 1979.

National Research Council. Polar Research Board, *National Academy of Sciences-National Research Council. Report to SCAR,* June 1978, No.20, 87p., Refs. p.55-75.

Research projects, Antarctica.

Information is presented on the U.S. Antarctic Research Program completed during the period Feb. 1977 to Mar. 1978, in progress from Mar. 1978 to Oct. 1978, and planned for Oct. 1978 through Sep. 1979. Research activities in the fields of atmospheric sciences, earth sciences, and biology are summarized, as well as research vessel operations, and information programs. Personnel, World Data Center A subcenters, and the members of the Polar Research Board and SCAR working groups are listed. A bibliography is included.

34-2161

Report on United States antarctic research activities for February 1978-October 1979; United States Antarctic research activities planned for October 1979-September 1980.

National Research Council. Polar Research Board, *National Academy of Sciences-National Research Council. Report to SCAR,* June 1979, No.21, 92p., Refs. p.61-80.

Research projects, Antarctica.

This report contains information on the U.S. Antarctic Research Program completed during the period Feb. 1968 to Mar. 1979, in progress from Mar. 1979 tp Oct. 1979, and planned for Oct. 1979 through Sep. 1980. Activities in the following areas are reported: atmospheric sciences, earth sciences, biology, research vessel operations, and information programs. In addition, listings are provided of U.S. stations and scientific personnel, World Data Center A subcenters, and the memberships of the Polar Research Board and SCAR working groups. A bibliography is included.

34-2162

British Antarctic Survey, 1978-79. *Polar record,* Sep. 1979, 19(123), p.605-612.

Research projects, Glaciology, Ice shelves, Snow surveys, Ice cores.

Five main British Antarctic Survey stations were occupied throughout the year: Faraday, Halley, Signy, Grytviken, and Rothera. Support for research programs and relief operations were provided by the two BAS ships, *John Biscoe* and *Bransfield,* with assistance from two Twin Otter aircraft and HMS *Endurance.* The research program included studies in marine biology, limnology, terrestrial biology, geology and land geophysics, glaciology, and the atmospheric sciences. During the season, the new Rothera station was completed and a new ionospherics laboratory was installed at Halley. The Rothera complex has aroused considerable international interest.

34-2163

Model of a stochastically driven ice sheet with planetary wave feedback.

Oerlemans, J., *Tellus,* Dec. 1979, 31(6), p.469-477, With Russian summary. 31 refs.

Ice sheets, Ice models, Ice mechanics.

34-2164
Ice thickness climatology for Canadian stations.
Richardson, F.A., et al, Toronto, Canada, 1975, 60p., 14 refs.
Burns, B.M.
Ice cover thickness, Snow depth, Climatology, Statistical analysis, Canada.

34-2165
Alaska energy project phase 2: planning energy technologies for a new Alaska community. Final report.
Alaska. Department of Commerce and Economic Development. Division of Energy and Power Development, Anchorage, Alaska, 1978, 206p., RLO-1002-TO3, 16 refs.
Urban planning, Environmental impact, Energy conservation.

34-2166
Investigations of the basic forces involved in the adhesion of ice to highway surfaces.
Ashworth, T., et al, *U.S. Department of Transportation. University research report*, Sep. 1979, DOT/RSPA/DPB-50/79/28, 109p., 65 refs.
Weyland, J.A.
Ice adhesion, Ice strength, Interfacial tension, Roads, Temperature effects.

34-2167
Internal friction of ice.
Oguro, M., *Seppyo*, Dec. 1979, 41(4), p.233-237, In Japanese with English summary. 15 refs.
Ice friction, Internal friction, Latticed structures.

34-2168
Movement of dislocations in ice and its plastic deformation.
Fukuda, A., *Seppyo*, Dec. 1979, 41(4), p.239-244, In Japanese with English summary. 11 refs.
Ice deformation, Plastic deformation, X ray analysis.

34-2169
Friction of ice.
Tushima, K., *Seppyo*, Dec. 1979, 41(4), p.245-251, In Japanese with English summary. 30 refs.
Ice friction, Ice mechanics, Ice adhesion.

34-2170
Structure and properties of grain boundaries in ice.
Hondoh, T., *Seppyo*, Dec. 1979, 41(4), p.253-257, In Japanese with English summary. 22 refs.
Ice structure, Boundary layer.

34-2171
Twin structures in ice.
Furukawa, Y., *Seppyo*, Dec. 1979, 41(4), p.259-265, In Japanese with English summary. 37 refs.
Ice crystal structure, Snow crystal structure, Snow crystal growth.

34-2172
Time series analyses on the maximum depth of snow cover in Akita city.
Ito, T., *Seppyo*, Dec. 1979, 41(4), p.267-275, In Japanese with English summary. 19 refs.
Snow depth, Climatology, Periodic variations, Statistical analysis.

34-2173
Upper limits of heaving pressure obtained by observing pore water pressure under partial soil freezing.
Takashi, T., et al, *Seppyo*, Dec. 1979, 41(4), p.277-287, In Japanese with English summary. 28 refs.
Ohrai, T., Yamamoto, H., Okamoto, J.
Frost heave, Soil water migration, Water pressure, Unfrozen water content, Ice lenses.

34-2174
Soviet glaciological investigations in 1978. ⌈Sovetskie gliatsiologicheskie issledovaniia v 1978 godu⌉,
Kotliakov, V.M., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol 35, p.5-12, In Russian.
Lapina, I.IA.
Polar regions, Glaciation, Mountain glaciers, Glacial hydrology, Alimentation, Ice conditions, Glacier ablation, Ice drills, Moraines, Glacier oscillation.
Glaciological research projects conducted by Soviet institutions during 1978 in various parts of the USSR, in the Arctic and the Antarctic are outlined. Antarctic programs included participation of the Institute of Geography in the IAGP. Highlights of this program were the discovery of a relatively warm water mass near the bottom of the Ross Sea, taking of an 800 m core at Novolazarevskaya, the formulation of an antarctic model of glaciation, and development of an algorithm for calculating the movement and thermal state of large ice sheets. The Institute of Mechanics of Moscow State University worked out a method of computing ice temperature and rate of accumulation from the horizontal projection of the tongue of a stationary glacier. From ancient moraines of Meserve Glacier, atmospheric temperature and precipitation variations in McMurdo Sound were computed for the last million years.

34-2175
International symposium on computation and forecasting of runoff from glaciers and glaciated areas. ⌈Mezhdunarodnyi simpozium po raschetu i prognozu stoka s lednikov i iz lednikovykh raionov⌉,
Chizhov, O.P., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.35, p.13-19, In Russian.
Meetings, Glaciology, Glacial hydrology, Glacial lakes, Glacier surfaces, Heat transfer, Heat balance, Glacier ablation, Models.

34-2176
Workshop on the world glacier inventory and meeting of the snow and ice commission in Switzerland. ⌈Seminar po vsemirnomu katalogu lednikov i zasedaniia komissii snega i l'da v Shveitsarii⌉,
Kotliakov, V.M., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.35, p.19-24, In Russian.
Dreier, N.N., Makarevich, K.G., Suslov, V.F.
Meetings, Glaciers, Alpine glaciation, Snow cover, Ice cover, Research projects.

34-2177
Glacial-nival systems of the Pamirs and Gissar-Alay. ⌈Nival'no-gliatsial'nye sistemy Pamira i Gissaro-Alaia⌉,
Kotliakov, V.M., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.35, p.25-33, In Russian with English summary. 24 refs.
Krenke, A.N.
Glaciers, Naleds, Ground ice, Snow cover distribution, Glacier ablation, Alimentation.

34-2178
Extent of glaciation in the Pamirs and factors affecting it. ⌈Stepen' oledeneniia Pamira i opredeliaiushchie ee faktory⌉,
Rototaeva, O.V., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.35, p.33-41, In Russian with English summary. 11 refs.
Glaciation, USSR—Pamirs.

34-2179
Plotting elevations of the alimentation and accumulation lines for Gissar-Alay glaciers. ⌈Postroenie polei vysoty granitsy pitaniia i akkumuliatsii dlia lednikovoi sistemy Gissaro-Alaia⌉,
Rototaeva, O.V., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.35, p.42-51, In Russian with English summary. 21 refs.
Mountain glaciers, Alimentation, Glacier ablation, Mass balance, Snow line, Glacier surfaces, Heat balance, Snow cover distribution, Charts.

34-2180
Data on glaciological processes in the recrystallization zone of ice formation in highlands. ⌈Nekotorye dannye o gliatsiologicheskikh protsessakh v vysokogornoi rekristallizatsionnoi zone l'doobrazovaniia⌉,
Diurgerov, M.B., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.35, p.52-56, In Russian with English summary. 5 refs.
Alpine glaciation, Ice formation, Glacier surfaces, Snow cover distribution, Alimentation, Snow accumulation, Snow recrystallization.

34-2181
Vertical air temperature gradients in the Pamirs. ⌈K voprosu o vertikal'nykh gradientakh temperatury vozdukha na Pamire⌉,
Davidovich, N.V., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.35, p.56-61, In Russian with English summary. 7 refs.
Mountain glaciers, Glacier surfaces, Air temperature, Temperature gradients, Glacial meteorology, Mapping.

34-2182
Vegetational indices of precipitation in the Alpine belts of the Pamirs. ⌈Fitoindikatsiia osadkov v vysokogornykh poiasakh Pamira⌉,
Agakhaniants, O.E., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.35, p.61-67, In Russian with English summary. 3 refs.
Kadomtseva, T.G., Savich, A.A.
Precipitation (meteorology), Alpine landscapes, Plant ecology, Ecosystems, USSR—Pamirs.

34-2183
Mineralization of glacial rivers in the Pamirs. ⌈Mineralizatsiia rek Pamira s lednikovym pitaniem⌉,
Krenke, A.N., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.35, p.67-70, In Russian with English summary. 12 refs.
Lysakovskii, V.V., Tsigel'naia, I.D.
Glacial rivers, Alimentation, Water chemistry, Mountain glaciers, Glacial hydrology.

34-2184
Ground ice and naleds in the Pamirs. ⌈O podzemnykh l'dakh i nalediakh Pamira⌉,
Koreisha, M.M., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.35, p.71-76, In Russian with English summary. 11 refs.
Permafrost distribution, Naleds, Ground ice, Permafrost hydrology, USSR—Pamirs.

34-2185
Summer heat balance and environmental conditions of periglacial naleds in the Pamirs. ⌈Osobennosti teplovogo balansa i uslovii sushchestvovaniia prilednikovykh naledei Pamira v letnee vremia⌉,
Lebedeva, I.M., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.35, p.76-81, In Russian with English summary. 12 refs.
Alpine landscapes, Glacial hydrology, Naleds, Water supply, Moraines, Water pollution.

34-2186
Geological action of glaciers in the Eastern Pamirs. ⌈O geologicheskoi deiatel'nosti lednikov Vostochnogo Pamira⌉,
Demchenko, V.V., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.35, p.81-85, In Russian with English summary. 3 refs.
Mountain glaciers, Glacier flow, Glacial erosion, Snow cover distribution, Alimentation, Moraines, Glacial hydrology, Runoff.

34-2187
Late quaternary ice cover of the Pamirs. ⌈Pozdnechetvertichnyi lednikovyi chekhol Pamira⌉,
Grosval'd, M.G., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.35, p.85-97, In Russian with English summary. 32 refs.
Orlankin, V.N.
Alpine glaciation, Origin, Ice formation, Topographic effects, Mountain glaciers, Maps, USSR—Pamirs.

34-2188
Phsiographic regionalization of the Pamirs. ⌈K voprosu o fiziko-geograficheskom raionirovanii Pamira⌉,
Kadomtseva, T.G., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.35, p.98-100, In Russian with English summary. 12 refs.
Alpine glaciation, Topographic effects, Glacier flow, Glacial erosion, Glacial hydrology, Glacial rivers, Alpine landscapes, Charts.

34-2189
Regionalization of the Pamirs for tourist maps. ⌈Opyt rekreatsionnogo raionirovaniia Pamira⌉,
Suprunenko, IU.P., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.35, p.101-108, In Russian with English summary. 17 refs.
Alpine glaciation, Alpine landscapes, Mapping, USSR—Pamirs.

34-2190
Snow cover of the Altai-Sayan area. ⌈Snezhnyi pokrov Altae-Saianskoi oblasti⌉,
Reviakin, V.S., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol 35, p.109-120, In Russian with English summary. 48 refs.
River basins, Snow cover distribution, Snow water equivalent, Alpine landscapes, Snow depth, Snow density, Charts.

34-2191
Snow cover distribution in the mountains of Tadzhikistan. [Osobennosti zaleganiia snezhnogo pokrova v gornykh raĭonakh Tadzhikistana],
Burichenko, A.I., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia,* 1979, Vol.35, p.120-126, In Russian with English summary. 5 refs.
Popova, L.V.
River basins, Snow cover distribution, Mapping, Snow depth, Snow water equivalent, USSR—Tadzhikistan.

34-2192
Topographic effect on snow cover distribution in mountains. [Zakonomernosti vliianiia rel'efa na zaleganie snezhnogo pokrova v gornykh raĭonakh],
Chirkova, A.A., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia,* 1979, Vol.35, p.126-133, In Russian with English summary. 7 refs.
River basins, Snow cover distribution, Snow depth, Snow surveys, Snow accumulation, Topographic factors, Meteorological factors, Mountains.

34-2193
Two criteria determining the structure of snow surveying and precipitation measuring networks in mountain basins. [O dvukh kriteriiakh, opredeliaiushchikh sostav snegomerno-osadkomernoĭ seti v gornykh basseĭnakh],
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Shentsis, I.D.
River basins, Snow surveys, Snow cover distribution, Snow depth, Snow water equivalent.

34-2194
Landscape-geographic technique of mapping snow cover under complicated orographic conditions. [Landshaftno-geograficheskiĭ metod kartirovaniia snezhnogo pokrova v usloviiakh slozhnoĭ orografii],
Kondakova, N.L., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia,* 1979, Vol.35, p.139-143, In Russian with English summary. 3 refs.
Mountains, Snow surveys, Mapping, Snow accumulation, Snow depth, Avalanche forecasting.

34-2195
Extreme snow conditions and their role in landscape formation. [Ekstremal'nye usloviia snezhnosti i ikh rol' v formirovanii landshafta],
IAshina, A.V., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia,* 1979, Vol.35, p.143-146, In Russian with English summary. 6 refs.
Landscape types, Snow cover distribution, Snowdrifts, Snow depth, Snow recrystallization, Snow cover stability, Avalanches, Landscape development.

34-2196
Satellite surveys of snow cover for calculating spring flood hydrographs. [Aerokosmicheskie metody izucheniia snezhnogo pokrova i ikh ispol'zovanie dlia rascheta gidrografa vesennego polovod'ia],
Deleur, M.S., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia,* 1979, Vol.35, p.146-154, In Russian with English summary. 4 refs.
Aerial surveys, Spaceborne photography, Snow cover, Snow water equivalent, Flood forecasting.

34-2197
Analyzing distributions of maximum snow reserves on glaciers and improving snow surveying techniques. [Analiz raspredeleniia maksimal'nykh snegozapasov na lednikakh i ratsionalizatsiia snegomernykh rabot],
Diurgerov, M.B., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia,* 1979, Vol.35, p.155-159, In Russian with English summary. 5 refs.
Zhuk, V.A., Pylev, I.V.
Glacier surfaces, Snow cover distribution, Snow surveys, Glaciers, Water balance.

34-2198
Snow survey techniques in mountain glacier basins. [K metodike snegos"emok v gorno-lednikovykh basseĭnakh],
Zhidkov, V.A., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia,* 1979, Vol.35, p.159-168, In Russian with English summary. 13 refs.
River basins, Mountain glaciers, Snow cover distribution, Snow surveys.

34-2199
Using distribution functions in calculating seasonal snow melting on slopes around the Dzhankuat glacier. [Ispol'zovanie funktsiĭ raspredeleniia dlia raschetov taianiia sezonnogo snega na sklonakh, okruzhaiushchikh lednik Dzhankuat],
Pylev, I.V., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia,* 1979, Vol.35, p.169-173, In Russian with English summary. 12 refs.
Barke, V.V.
Mountain glaciers, Slope orientation, Snow cover distribution, Snow melting.

34-2200
High accuracy phototachymeters for studying glacier movement. [Primenenie vysokotochnogo svetodal'nomera dlia issledovaniia dvizheniia lednikov],
Volkonskiĭ, B.V., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia,* 1979, Vol.35, p.173-178, In Russian with English summary. 5 refs.
Glacier flow, Flow rate, Measuring instruments.

34-2201
Studies of heat and mass transfer at the lower surface of the Ross Ice Shelf. [Issledovaniia teplo- i massoobmena nizhneĭ poverkhnosti shel'fovogo lednika Rossa],
Zotikov, I.A., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia,* 1979, Vol.35, p.178, In Russian.
Zagorodnov, V.S., Raĭkovskiĭ, IU.V.
Ice shelves, Ice melting, Ice accretion, Subglacial observations, Water transport, Ocean currents, Ice water interface, Heat transfer, Phase transformations, Ice coring drills, Antarctica—Ross Ice Shelf.
A joint American-Soviet project, financed by the National Science Foundation for measuring mass balance at the lower Ross Ice Shelf surface, began in 1976/77. The program included measurements of accretion and melting rates at the ice-water interface, structure and movement of subglacial currents, and ice core drilling through the shelf. Phase transformations were studied by special ultrasonic devices. Quartz thermometers used indicated two subglacial isothermal water layers. Ice cores from a 416 m hole revealed an upper snow-firn layer 45 m thick followed by vesicular ice down to 410 m and the lower 6 meters of water permeable ice. Core samples obtained were prepared for further chemical and isotope analyses.

34-2202
Problems in studying glaciological terminology. [Glavnye zadachi terminologicheskoĭ raboty v oblasti gliatsiologii],
Kotliakov, V.M., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia,* 1979, Vol.35, p.179-184, In Russian with English summary.
Glaciology, Terminology, Mountain glaciers, Glacial hydrology, Periglacial processes, Glacier ice, Naleds, Ground ice, Snow cover, Avalanches, Theories, Research projects.

34-2203
Problems in glaciological terminology and ways of systematization. [Nekotorye problemy sovremennoĭ gliatsiologicheskoĭ terminologii i puti ee sistematizatsii],
Smolikova, N.A., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia,* 1979, Vol.35, p.184-191, In Russian with English summary. 22 refs.
Glaciology, Terminology.

34-2204
Geomorphological processes developing on artificial structures in the nivation-glaciation zone of the Khibiny Mountains. [Tekhnogennye geomorfologicheskie protsessy nival'no-gliatsial'noĭ zony (na primere Khibin)],
Semekhin, IU.V., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia,* 1979, Vol.35, p.192-195, In Russian with English summary. 1 ref.
Miagkov, S.M., Vashchalova, T.V.
Quarries, Tailings, Slope processes, Solifluction, Ground ice, Rock glaciers, Periglacial processes.

34-2205
Glacial mudflows, not related to glacier-damned lakes, in the Gerkhozhan-Su Basin, North Caucasus. [Formirovanie gliatsial'nykh seleĭ neproryvnogo genezisa v basseĭne Gerkhozhan-Su na Severnom Kavkaze],
Fleĭshman, S.M., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia,* 1979, Vol.35, p.195-198, In Russian with English summary. 6 refs.
Seĭnova, I.B., Zolotarev, E.A.
Slope processes, Mudflows, Ground ice, Ice lenses, Ice melting.

34-2206
Hydrometeorological conditions of the formation of snow-loaded streams. [Gidrometeorologicheskie usloviia formirovaniia vodosnezhnykh potokov],
Freĭdlin, V.S., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia,* 1979, Vol.35, p.198-200, In Russian with English summary. 5 refs.
Mountains, River basins, Slope processes, Runoff, Snow melting, Streams, Slush.

34-2207
Activities of snow-carrying streams. [Sledy deĭstviia vodosnezhnykh potokov],
Sapunova, G.G., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia,* 1979, Vol.35, p.201-202, In Russian with English summary. 3 refs.
Sapunov, V.N.
Slope processes, Snowmelt, Runoff, Slush, Streams, Erosion.

34-2208
Large runoff values from glacier basins located in the dry climate zone of the Altai. [O bol'shikh velichinakh stoka iz nekotorykh lednikovykh basseĭnov v naibolee kontinental'nom raĭone Altaia],
Gerasimenko, O.M., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia,* 1979, Vol.35, p.203-204, In Russian with English summary. 2 refs.
River basins, Mountain glaciers, Glacial hydrology, Runoff, Climatic factors.

34-2209
Pleistocene glaciation of Spitsbergen. [O pleĭstotsenovykh oledeneniiakh na Shpitsbergene],
Punning, IA.-M.K., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia,* 1979, Vol.35, p.204-208, In Russian with English summary. 9 refs.
Troitskiĭ, L.S.
Moraines, Radioactive age determination.

34-2210
Moisture balance in the system Antarctic ice sheet surface-atmosphere. [Balans vlagi v sisteme "poverkhnost' lednikovogo pokrova Antarktidy-atmosfera"],
Aver'ianov, V.G., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia,* 1979, Vol.35, p.209-211, In Russian with English summary. 4 refs.
Land ice, Ice sheets, Mass balance, Ice air interface, Moisture transfer, Evaporation, Antarctica.
Mass balance components of the ice sheet surface, related to atmospheric moisture cycles, were used in calculating moisture circulation in the whole system. Water balance structure in Antarctica was characterized by a very high runoff coefficient of 90% compared to 70% for the Arctic and 40% for the total land mass of the Earth. This difference is explained by surface specifics of the only continental ice cover of the planet and severe climate with insignificant atmospheric precipitation and very low evaporation from the surface.

34-2211
Thermal capacity of sea ice and its effect on ice cover melting in Arctic seas. [Effektivnaia teploemkost' morskogo l'da i ee vliianie na protsess taianiia ledianogo pokrova arkticheskikh moreĭ],
Faĭko, L.I., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia,* 1979, Vol.35, p.211-213, In Russian with English summary. 7 refs.
Sea ice, Polar regions, Heat capacity, Ice melting, Ice cover thickness, Water temperature, Subglacial observations.

34-2212
Mappable indices of glacier surface orientation. [O kartografiruemom pokazatele orientatsii poverkhnosti lednikov],
Kut'melanck, V.A., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia,* 1979, Vol.35, p.214-216, In Russian with English summary. 8 refs.
Mountain glaciers, Glacier surfaces, Orientation, Maps.

34-2213
Annotated list of Soviet literature on glaciology for 1976. [Annotirovannyi spisok sovetskoi literatury po ghatsiologii za 1976 god],
Kotliakov, V.M., et al, *Akademiia nauk SSSR. Institut geografii Materialy ghatsiologicheskikh issledovanii. Khronika obsuzhdeniia.* 1979, Vol.35, p.217-288, In Russian with English foreword. 660 refs.
Lapina, I.A., Chernova, L.P.
Bibliographies, Glaciology.
Contains 33 references on the Antarctic

34-2214
Antarctica; commission reports, vol.18. [Antarktika; doklady komissii, vypusk 18],
Akademiia nauk SSSR Mezhduvedomstvennaia komissiia po izucheniiu Antarktiki. Moscow, Nauka, 1979, 215p., In Russian. Refs.
DLC G576.A65
Ice, Snow, Oceanography, Meteorology, Geology.
This volumes contains papers in geology, terrestrial and marine biology, oceanology, glaciology, and medicine. For individual papers, see B-22891 through B-22893, C-22882, E-22876 through E-22881, F-22883 through F-22886, H-22894, J-22887 through J-22890, and K-22875, or 34-2215 through 34-2218

34-2215
Heat exchange between ice cover and atmosphere in East Antarctica. [Obmen teplovoi energiei mezhdu lednikovym pokrovom i atmosferoi v Vostochnoi Antarktide],
Aver'ianov, V.G., *Antarktika: doklady komissii,* 1979, No.18, p.91-96, 7 refs., In Russian.
DLC G576.A65
Snow air interface, Ice air interface, Ice heat loss, Glacier heat balance, Heat balance, Ice heat flux, Antarctica—Mirnyy Station, Antarctica—Vostok Station.
Mean annual values of heat balance components at the ice cover surface, in the atmosphere above it, and at the ice-air interface are studied at Mirnyy and Vostok Stations. The main source of heat energy at the ice cover edge is heat from atmospheric moisture crystallization, while at the center of the ice sheet it is from heat advection from the sea. Low-frequency radiation is the primary mechanism for both surface and atmospheric heat loss in both regions.

34-2216
Snow cover metamorphism on the glacier slope near the Molodezhnaya oasis. [Metamorfizm snezhnogo pokrova na lednikovom sklone v raione oazisa Molodezhnogo],
Voitkovskii, K.F., *Antarktika: doklady komissii,* 1979, No.18, p.97-105, 4 refs., In Russian.
DLC G576.A65
Snow recrystallization, Regelation, Seepage Snow compaction, Metamorphism (snow), Antarctica—Molodezhnaya Station.
The results of observing processes of snow cover metamorphism in the Molodezhnaya area are presented. The snow cover changes into firn with ice veins during the warm season. Processes of regelative recrystallization can recur during later warm periods if the given layer is in a water infiltration zone. Mechanical densification of snow cover during accumulation facilitates more intense formation of firn granules. Smoothing of the snow surface during summer slows firnification.

34-2217
Analysis of heat and mass exchange during thermal drilling. [Analiz teplo-massoobmena pri kolonkovom burenii skvazhin plavleniem],
Kudriashov, B.B., et al, *Antarktika: doklady komissii,* 1979, No.18, p.106-112, 6 refs., In Russian.
Salamatin, A.N., Chistiakov, V.K.
DLC G576.A65
Mass transfer, Heat transfer, Thermal drills, Drilling.
An analysis of heat exchange in the heating element of thermal ice coring drills during drilling is presented. The problem of temperature field of the ice mass below the working surface of the heating unit is investigated. The relationships among basic parameters of the thermal drilling process are analyzed mathematically. Results of theoretical studies were corroborated experimentally.

34-2218
Annual and long-term variations in ice distribution in the Atlantic sector of Antarctica. [O mezhgodovoi i mnogoletnei izmenchivosti rasprostraneniia l'da v Atlanticheskom sektore Antarktiki],
Dobromyslov, V.N., et al, *Antarktika: doklady komissii,* 1979, No.18, p.113-117, 10 refs., In Russian.
Maslennikov, V.V.
DLC G576.A65
Sea ice distribution, Climatic changes, South Atlantic Ocean.
Annual and long-term fluctuations in the position of the ice edge in the Atlantic sector of the Antarctic are considered. Satellite data collected in 1971 to 1976 are used. Comparison of these data with information on ice distribution during the first half of the 20th century indicate a significant decrease in ice cover area in 1971-1976.

34-2219
Proceedings.
Symposium on Glacier Beds: the Ice-Rock Interface, Ottawa, Aug. 1978, *Journal of glaciology,* 1979, 23(89), p.1-445, Includes 26 full papers and a general discussion, brief progress reports on current work; abstracts of papers presented at the symposium but not published in full in this volume; abstracts of papers accepted for the symposium but not presented; a general index; and an index of authors and participants. Numerous refs. For individual papers see 34-2220 through 34-2245.
Meetings, Glacier beds, Ice solid interface.

34-2220
Processes of glacier erosion on different substrata.
Boulton, G.S., *Journal of glaciology,* 1979, 23(89), p.15-38, In English with French and German summaries. 43 refs.
Glacial erosion, Abrasion, Glacier beds, Basal sliding, Models.
Most theories of glacier movement and subglacial erosion have assumed that glaciers rest on rigid bedrock surfaces. While this is probably correct for much of the bed area of most modern glaciers, deformable sediments do occur beneath them and formed a substantial area of the beds of large ice sheets during glacial periods. Observations and theories are presented and reviewed about the processes of glacier erosion of rock and unlithified sediment beds both when they are frozen and unfrozen. (Auth. mod.)

34-2221
Theoretical model of glacial abrasion.
Hallet, B., *Journal of glaciology,* 1979, 23(89), p.39-50, In English with French and German summaries. 17 refs.
Glacial erosion, Abrasion, Theories, Models.

34-2222
Simulated glacial abrasion.
Mathews, W.H., *Journal of glaciology,* 1979, 23(89), p.51-56, 5 refs.
Glacial erosion, Abrasion, Environment simulation.

34-2223
Spectral power density and shadowing function of a glacial microrelief at the decimetre scale.
Benoist, J.P., *Journal of glaciology,* 1979, 23(89), p.57-66, In English with French and German summaries. 15 refs.
Glacier beds, Statistical analysis, Microrelief.

34-2224
Local friction laws for glaciers: a critical review and new openings.
Lliboutry, L., *Journal of glaciology,* 1979, 23(89), p.67-95, In English with French and German summaries. 31 refs.
Glacier beds, Basal sliding, Hydraulics, Glacier friction.

34-2225
Unsolved general glacier sliding problem.
Weertman, J., *Journal of glaciology,* 1979, 23(89), p.97-115, In English with French and German summaries. Refs. p.109-111.
Glacier flow, Basal sliding, Ice solid interface, Theories.

34-2226
Flow of ice, as a Newtonian viscous liquid, around a cylindrical obstacle near the bed of a glacier.
Morris, E.M., *Journal of glaciology,* 1979, 23(89), p.117-129, In English with French and German summaries. 21 refs.
Glacier flow, Analysis (mathematics).

34-2227
Mathematical approach to the theory of glacier sliding.
Fowler, A.C., *Journal of glaciology,* 1979, 23(89), p.131-141, In English with French and German summaries. 20 refs.
Glacier flow, Basal sliding, Theories, Analysis (mathematics).

34-2228
Simulated glacier sliding over an obstacle.
Brepson, R., *Journal of glaciology,* 1979, 23(89), p.143-156, In English with French and German summaries. 13 refs.
Measuring instruments, Viscosity, Glacier flow, Basal sliding.

34-2229
Empirical studies of ice sliding.
Budd, W.F., et al, *Journal of glaciology,* 1979, 23(89), p.157-170, In English with French and German summaries. 27 refs.
Keage, P.L., Blundy, N.A.
Glacier flow, Basal sliding, Surface roughness, Shear stress, Velocity measurement.

34-2230
Seismic evidence for discrete glacier motion at the rock-ice interface.
Weaver, C.S., et al, *Journal of glaciology,* 1979, 23(89), p.171-184, In English with French and German summaries. 14 refs.
Malone, S.D.
Glacier flow, Seismic surveys, Icequakes.

34-2231
On the origin of stratified debris in ice cores from the bottom of the Antarctic ice sheet.
Gow, A.J., et al, *Journal of glaciology,* 1979, 23(89), MP 1272, p.185-192, In English with French and German summaries. 11 refs.
Epstein, S., Sheehy, W.
Ice cores, Drill core analysis, Sedimentation, Stratification, Freeze thaw cycles.
Cores from the bottom 4.83 m of the Antarctic ice sheet at Byrd Station contain abundant stratified debris ranging from silt-sized particles to cobbles. The nature and disposition of the debris, together with measurements of the physical properties of the enclosing ice, indicate that this zone of dirt-laden ice originated by "freezing-in" at the base of the ice sheet. The transition from air-rich glacial ice to ice practically devoid of air coincided precisely with the first appearance of debris in the ice at 4.83 m above the bed. Stable-isotope studies made in conjunction with gas-content measurements also confirm the idea of incorporation of basal ice may well constitute the most diagnostic test for discriminating between debris incorporated in a melt-refreeze process and debris entrapped by purely mechanical means, e.g. shearing. We conclude from our observations on bottom cores from Byrd Station that "freezing-in" of basal debris is the major mechanism by which sediment is incorporated into polar ice sheets. (Auth.)

34-2232
Debris-laden ice at the bottom of the Greenland ice sheet.
Herron, S., et al, *Journal of glaciology,* 1979, 23(89), p.193-207, In English with French and German summaries. Refs. p.205-207.
Langway, C.C., Jr.
Ice cores, Ice sheets, Bottom sediment, Gas inclusions, Freeze thaw cycles.

34-2233
Discontinuous flow, ice texture, and dirt content in the basal layers of the Devon Island ice cap.
Koerner, R.M., et al, *Journal of glaciology,* 1979, 23(89), p.209-222, In English with French and German summaries. 24 refs.
Fisher, D.A.
Drill core analysis, Ice sheets, Bottom sediment, Ice structure.

34-2234
Depolarization of radio waves can distinguish between floating and grounded ice sheets.
Woodruff, A.H.W., et al, *Journal of glaciology,* 1979, 23(89), p.223-232, In English with French and German summaries. 19 refs.
Doake, C.S.M.
Floating ice, Grounded ice, Radio echo soundings.
Polar ice is now thought to be marginally birefringent at radio echo-sounding frequencies. An experiment on the polarization behaviour of 60 MHz radio echoes from the bed of both ice shelf and land ice in Antarctica showed a marked difference in the returned polarization. It appears that differences in electrical properties or roughness of the reflecting boundary cannot explain these results. It is suggested that there is a large change in the birefringence of the ice sheet at the hinge zone, caused by the effect of tidal strain on crystal orientation. This would imply a minimum value of the radio-frequency anisotropy in permittivity for the single crystal of 0.52%. Therefore polarization changes could allow floating and grounded ice to be distinguished. (Auth.)

34-2235
Energy dissipation during subglacial abrasion at Nisqually Glacier, Washington, U.S.A.
Metcalf, R.C., *Journal of glaciology,* 1979, 23(89), p.233-246, In English with French and German summaries. 35 refs.
Abrasion, Subglacial drainage, Suspended sediments, Glacial erosion.

34-2236
Sediment concentration in melt waters as an indicator of erosion processes beneath an alpine glacier.
Collins, D.N., *Journal of glaciology,* 1979, 23(89), p.247-257, In English With French and German summaries. 12 refs.
Suspended sediments, Meltwater, Subglacial drainage, Glacial erosion.

34-2237
Pressure-melting effects in bas ◦ ice of temperate glaciers: laboratory studies and field observations under Glacier d'Argentière.
Goodman, D.J., et al, *Journal of glaciology*, 1979, 23(89), p.259-271, In English with French and German summaries. 13 refs.
King, G.C.P., Millar, D.H.M., Robin, G. de Q.
Glacier ice, Ice melting, Water pressure, Subglacial observations.

34-2238
Observations within cavities at the bed of the glacier Österdalsisen, Norway.
Theakstone, W.H., *Journal of glaciology*, 1979, 23(89), p.273-281, In English with French and German summaries. 28 refs.
Subglacial observations, Glacier beds, Ice creep, Ice deformation.

34-2239
Sequence of glacial deformation, erosion, and deposition at the ice-rock interface during the last glaciation: Cranbrook, British Columbia, Canada.
Broster, B.E., et al, *Journal of glaciology*, 1979, 23(89), p.283-295, In English with French and German summaries. 12 refs.
Dreimanis, A., White, J.C.
Glacial geology, Glacial erosion, Glacial deposits, Plastic deformation, Ice solid interface.

34-2240
Giant grooves made by concentrated basal ice streams.
Goldthwait, R.P., *Journal of glaciology*, 1979, 23(89), p.297-307, In English with French and German summaries. 21 refs.
Glacial geology, Basal sliding, Ice scoring, United States—Ohio—Kelleys Island.

34-2241
Direct measurement of basal water pressures: progress and problems.
Hodge, S.M., *Journal of glaciology*, 1979, 23(89), p.309-319, In English with French and German summaries. 12 refs.
Subglacial observations, Water pressure, Measurement, Boreholes.

34-2242
Subglacial regelation water film.
Hallet, B., *Journal of glaciology*, 1979, 23(89), p.321-334, In English with French and German summaries. 41 refs.
Subglacial observations, Basal sliding, Water films, Regelation.

34-2243
Geometry of former subglacial water channels and cavities.
Walder, J., et al, *Journal of glaciology*, 1979, 23(89), p.335-346, In English with French and German summaries. 31 refs.
Hallet, B.
Subglacial observations, Glacier beds, Ice scoring, Glacial erosion.

34-2244
Quantitative determination of the subglacial hydrology of two alpine glaciers.
Collins, D.N., *Journal of glaciology*, 1979, 23(89), p.347-362, In English with French and German summaries. 30 refs.
Glacial hydrology, Water chemistry, Electrical resistivity.

34-2245
Subglacial constructions and investigations at Bondhusbreen, Norway.
Wold, B., et al, *Journal of glaciology*, 1979, 23(89), p.363-379, In English with French and German summaries. 8 refs.
Östrem, G.
Subglacial observations. Meltwater, Sediment transport, Tunneling (excavation).

34-2246
Scientific conference of geographers from Siberia and the Far East. Geography and practice. Proceedings. [Materialy],
Nauchnoe soveshchanie geografov Sibiri i Dal'nego Vostoka. Geografiia i praktika, 6th, Oct. 10-12, Irkutsk, 1978, Irkutsk, 1978, 253p., In Russian. For selected papers see 34-2247 through 34-2251. Refs. passim.
Medvedkova, E.A., ed.
Environmental protection, Subarctic landscapes, Taiga, Tundra, Forest tundra, Human factors, Mining, Construction, Swamps, Land reclamation, Meetings.

34-2247
Regional types of mining-affected lands in East Siberia and trends in their restoration. [Regional'nye tipy zemel', narushennykh gornymi rabotami v Vostochnoi Sibiri i obosnovanie napravlenii ikh rekul'tivatsii],
Savel'eva, I.L., et al, Nauchnoe soveshchanie geografov Sibiri i Dal'nego Vostoka. Geografiia i praktika, 6th, Oct. 10-12, Irkutsk, 1978. Materialy (Scientific conference of geographers from Siberia and the Far East. Geography and practice. Proceedings) edited by E.A. Medvedkova, Irkutsk, 1978, p.98-102, In Russian. 1 ref.
Kalep, L.L.
Land reclamation, Taiga, Mountains, Subarctic landscapes, Steppes, Human factors, Mining, Environmental protection.

34-2248
Ecologic considerations when making decisions concerning power-fuel supply systems. [Uchet ekologicheskikh faktorov pri vybore reshenii dlia ob"ektov toplivno-energeticheskogo kompleksa],
Alekseeva, G.V., et al, Nauchnoe soveshchanie geografov Sibiri i Dal'nego Vostoka. Geografiia i praktika, 6th, Oct. 10-12, Irkutsk, 1978. Materialy (Scientific conference of geographers from Siberia and the Far East. Geography and practice. Proceedings) edited by E.A. Medvedkova, Irkutsk, 1978, p.103-108, In Russian. 2 refs.
Koshelev, A.A., Stepanova, T.A.
Environmental protection, Electric power, Fuels, Fuel transport, Pipelines, Permafrost beneath structures, Permafrost control.

34-2249
Forecasting changes in West Siberian landscapes due to pipeline construction. [Prognoz izmeneniia prirodnykh kompleksov severa Zapadnoi Sibiri pod vliianiem lineinogo stroitel'stva],
Moskalenko, N.G., Nauchnoe soveshchanie geografov Sibiri i Dal'nego Vostoka. Geografiia i praktika, 6th, Oct. 10-12, Irkutsk, 1978. Materialy (Scientific conference of geographers from Siberia and the Far East. Geography and practice. Proceedings) edited by E.A. Medvedkova, Irkutsk, 1978, p.115-119, In Russian. 4 refs.
Landscape types, Taiga, Tundra, Forest tundra, Swamps, Economic development, Pipelines, Permafrost beneath structures, Environmental protection.

34-2250
Swamp land reclamation in West Siberia. [Osobennosti melioratsii bolotnykh massivov Zapadnoi Sibiri],
Sazonov, A.G., Nauchnoe soveshchanie geografov Sibiri i Dal'nego Vostoka. Geografiia i praktika, 6th, Oct. 10-12, Irkutsk, 1978. Materialy (Scientific conference of geographers from Siberia and the Far East. Geography and practice. Proceedings) edited by E.A. Medvedkova, Irkutsk, 1978, p.119-122, In Russian.
Swamps, Permafrost distribution, Land reclamation.

34-2251
Agricultural development of the Ob'-Irtysh flood plain meadows in northern Tyumen'. [Sel'skokhoziaistvennoe ispol'zovanie Ob'-Irtyshskoi lugovoi poimy na Tiumenskom Severe],
Aseeva, A.I., Nauchnoe soveshchanie geografov Sibiri i Dal'nego Vostoka. Geografiia i praktika, 6th, Oct. 10-12, Irkutsk, 1978. Materialy (Scientific conference of geographers from Siberia and the Far East. Geography and practice. Proceedings) edited by E.A. Medvedkova, Irkutsk, 1978, p.123-127, In Russian.
Cryogenic soils, Meadow soils, Vegetation.

34-2252
Soils in pine forests of Karelia. [Pochvy sosnovykh lesov Karelii],
P'iavchenko, N.I., ed, Petrozavodsk, 1978, 141p., In Russian. For selected papers see 34-2253 through 34-2258.
Morozova, R.M., ed.
Cryogenic soils, Moraines, Forest soils, Podsol, Soil formation, Soil chemistry, Soil freezing, Soil water migration, Litter, Biomass.

34-2253
Soil formation on sandy deposits in Karelia. [Pochvoobrazovanie na peschanykh otlozheniiakh Karelii],
Morozova, R.M., Pochvy sosnovykh lesov Karelii (Soils in pine forests of Karelia) edited by N.I. P'iavchenko and R.M. Morozova, Petrozavodsk, 1978, p.4-43, In Russian.
Moraines, Soil formation, Cryogenic soils, Forest soils, Podsol, Soil profiles, Soil chemistry, Vegetation factors, USSR—Karelia.

34-2254
Hydrothermal regime of autonomous sandy soils. [Gidrotermicheskii rezhim avtonomnykh peschanykh pochv],
Erukov, G.V., Pochvy sosnovykh lesov Karelii (Soils in pine forests of Karelia) edited by N.I. P'iavchenko and R.M. Morozova, Petrozavodsk, 1978, p.44-58, In Russian.
Soil freezing, Soil water migration, Soil temperature, Cryogenic structures, Forest soils, Podsol, Mosses, Lichens, USSR—Kola Peninsula.

34-2255
Chemical composition of natural waters and migration of chemical substances in pine forest biogeocenoses. [Khimicheskii sostav prirodnykh vod i migratsiia veshchestv v sosnovykh biogeotsenozakh],
Strelkova, A.A., Pochvy sosnovykh lesov Karelii (Soils in pine forests of Karelia) edited by N.I. P'iavchenko and R.M. Morozova, Petrozavodsk, 1978, p.59-67, In Russian.
Forest soils, Litter, Podsol, Soil water migration, Water chemistry, Soil composition, Vegetation factors.

34-2256
Iron and organic matter migration in sandy podsols. [O migratsii zheleza i organicheskogo veshchestva v peschanykh podzolistykh pochvakh],
Lazareva, I.P., Pochvy sosnovykh lesov Karelii (Soils in pine forests of Karelia) edited by N.I. P'iavchenko and R.M. Morozova, Petrozavodsk, 1978, p.67-71, In Russian.
Forest soils, Litter, Cryogenic soils, Sands, Soil chemistry, USSR—Karelia.

34-2257
Seasonal variations in chemistry of sandy podsols. [Sezonnye izmeneniia khimicheskikh svoistv podzolistykh peschanykh pochv],
Kulikova, V.K., Pochvy sosnovykh lesov Karelii (Soils in pine forests of Karelia) edited by N.I. P'iavchenko and R.M. Morozova, Petrozavodsk, 1978, p.71-84, In Russian.
Cryogenic soils, Podsol, Soil chemistry.

34-2258
Biological cycle of substances in cowberry and lichen pine forests. [Biologicheskii krugovorot veshchestv v sosniakakh brusnichnykh i lishainikovykh],
Morozova, R.M., Pochvy sosnovykh lesov Karelii (Soils in pine forests of Karelia) edited by N.I. P'iavchenko and R.M. Morozova, Petrozavodsk, 1978, p.85-112, In Russian.
Forest soils, Cryogenic soils, Soil chemistry, Vegetation, Biomass, Litter, Chemical composition.

34-2259
Proceedings.
Conference on Scientific Research in the National Parks, 1st, New Orleans, Nov ' 12, 1976, Transactions and proceedings series National Park Service, No.5, U.S. Department of the Interior, 1979, 1325p. (2 vols.), Refs. passim. For selected papers see 34-534 and 34-2260 through 34-2266.
Linn, R.M., ed.
Alpine tundra, Revegetation, Plant ecology, Glacial geology, Glacier flow, Ecosystems, Research projects.

34-2260
Ecology of alpine timberline in Olympic National Park.
Fonda, R.W., Conference on Scientific Research in the National Parks, 1st, New Orleans, Nov. 9-12, 1976. Proceedings. Edited by R.M. Linn, U.S. Department of the Interior, 1979, p.209-212, 7 refs.
Plant ecology, Forest lines, Vegetation patterns, Environments, Climatic factors, Plant physiology, Soil water.

34-2261
Primary versus secondary succession at Glacier Bay National Monument, southeastern Alaska.
Lawrence, D.B., Conference on Scientific Research in the National Parks, 1st, New Orleans, Nov. 9-12, 1976. Proceedings. Edited by R.M. Linn, U.S. Department of the Interior, 1979, p.213-224, 39 refs.
Forest ecosystems, Plant ecology, Tundra, Glacier oscillation.

34-2262
Problems of revegetation of alpine tundra.
Stevens, D.R., Conference on Scientific Research in the National Parks, 1st, New Orleans, Nov. 9-12, 1976. Proceedings. Edited by R.M. Linn, U.S. Department of the Interior, 1979, p.241-245, 21 refs.
Alpine tundra, Revegetation, Plant ecology, Ecosystems, Temperature factors, Soil water.

34-2263
Ecology of elk on alpine tundra in Rocky Mountain National Park.
Stevens, D.R., Conference on Scientific Research in the National Parks, 1st, New Orleans, Nov. 9-12, 1976. Proceedings. Edited by R.M. Linn, U.S. Department of the Interior, 1979, p.421-426, 21 refs.
Alpine tundra, Environmental impact, Animals, Ecology.

34-2264
Glacial geology of recently deglaciated bedrock areas.
Hallet, B., Conference on Scientific Research in the National Parks, 1st, New Orleans, Nov. 9-12, 1976. Proceedings. Edited by R.M. Linn, U.S. Department of the Interior, 1979, p.795-801, 16 refs.
Glacial geology, Cirque glaciers, Glacier flow, Glacier beds, Ice solid interface, Chemistry, Topographic features.

34-2265
Observations of glacier variations in Glacier Bay National Monument.
Field, W.O., Conference on Scientific Research in the National Parks, 1st, New Orleans, Nov. 9-12, 1976. Proceedings. Edited by R.M. Linn, U.S. Department of the Interior, 1979, p.803-808, 29 refs.
Glacier oscillation, Glacier flow, Glacier mass balance, Tidal glaciers, Tides.

34-2266
Alpine and subalpine vegetation under the influence of non-native mountain goats, Olympic National Park.
Olmsted, I.C., Conference on Scientific Research in the National Parks, 1st, New Orleans, Nov. 9-12, 1976. Proceedings. Edited by R.M. Linn, U.S. Department of the Interior, 1979, p.1143-1148, 8 refs.
Alpine landscapes, Vegetation, Animals, Forest lines.

34-2267
Development and test of fiberglass low-impact resistant towers.
Rogers, E.T., et al, Mount Pleasant, Pennsylvania, Permali, Inc., 1979, 77p. ADA-077 160.
Ross, J.A., Snyder, K.M.
Towers, Ice loads, Wind pressure, Impact strength.

34-2268
Characteristics of subarctic snow cover.
Fitzgibbon, J.E., et al, *Hydrological sciences bulletin*, Dec. 1979, 24(4), p.465-476, In English with French summary. 11 refs.
Dunne, T.
Snow cover distribution, Snowmelt, Vegetation factors.

34-2269
Synoptic climatology of the Canadian High Arctic.
Bradley, R.S., et al, *Geografiska annaler. Series A Physical geography*, 1979, 61A(3-4), p.187-201, 25 refs.
England, J.
Synoptic meteorology, Climatology, Classifications, Canada.

34-2270
Ice winters 1971-75 along the Finnish coast. [Jäätalvet 1971-75 suomen merialueilla], *Finnish marine research*, 1979, No.245, 63p., In Finnish and English.
Statistical analysis, Sea ice, Ice conditions, Finland.

34-2271
Dependence of lake ice-covers on weather, snow and water. [Sjöisars beroende av väder och vind, snö och vatten],
Fremling, S., *Sweden. Meteorologiska och hydrologiska institutet. SMHI rapporter*, 1977, No.RHO 12, 113p., In Swedish. 25 refs.
Lake ice, Ice cover, Meteorological factors.

34-2272
Plant reproduction in a High Arctic environment.
Bell, K.L., et al, *Arctic and alpine research*, Feb. 1980, 12(1), p.1-10, 26 refs.
Bliss, L.C.
Arctic landscapes, Vegetation patterns, Plants (botany), Cold tolerance.

34-2273
Relationships between snow cover and winter losses of dissolved substances from a mountain watershed.
Lewis, W.M., Jr, et al, *Arctic and alpine research*, Feb. 1980, 12(1), p.11-17, 10 refs.
Grant, M.C.
Snow hydrology, Snow composition, Minerals, Nutrient cycle, Watersheds.

34-2274
Palsas and other permafrost features in the lower Rock Creek Valley, west-central Alberta.
Brown, G., *Arctic and alpine research*, Feb. 1980, 12(1), p.31-40, 29 refs.
Frost mounds, Permafrost distribution, Meteorological factors.

34-2275
Problem of lichen-free zones in Arctic Canada.
Koerner, R.M., *Arctic and alpine research*, Feb. 1980, 12(1), p.87-94, 24 refs.
Lichens, Snow cover effect.

34-2276
Description of a thrust of sea ice.
Hanson, A., *Arctic and alpine research*, Feb. 1980, 12(1), p.101-104, 6 refs.
Sea ice, Pressure ridges.

34-2277
Air cushion vehicle (ACV) icebreaker test and evaluation program. Volume 1. Executive summary.
Buck, J., et al, *U.S. Coast Guard Research and Development Center. Report*, July 1978, CGR/DC-12-78, 39p. ADA-077 291.
Pritchett, C.W.
Icebreakers, Air cushion vehicles, Cold weather performance, River ice, Low temperature tests.

34-2278
Air cushion vehicle (ACV) icebreaker test and evaluation program. Volume 2. Operational and engineering analysis.
Buck, J., et al, *U.S. Coast Guard Research and Development Center. Report*, Aug. 1978, CGR/DC-13-78, 156p. ADA-077 449.
Dennis, B., Anthony, J., Neal, E.
Air cushion vehicles, Icebreakers, Cold weather performance, Low temperature tests, River ice.

34-2279
Statistical analysis of terrain and water (ice) backgrounds in a winter scene from northern Michigan.
LaRocca, A.J., *Environmental Research Institute of Michigan. Infrared and Optics Division. Report*, Oct. 1979, ERIM-139900-2-F, 302p. ADA-077 554.
Statistical analysis, Terrain identification, Infrared photography, Ice cover.

34-2280
Aircraft icing during low-level flights.
Rapp, R.R., *Rand Corporation. Report*, Nov. 1979, RAND/N-1311-AF, 18p. ADA-078 843.
Aircraft icing.

34-2281
Degradation of oil by yeast and filamentous fungi in Arctic environments.
Crow, S.A., et al, Atlanta, Georgia State University, 1979, 13p. ADA-078 892.
Ahearn, D.G.
Fungi, Oil spills, Degradation, Polar regions.

34-2282
Battery for Arctic radio repeater systems.
Armstrong, W.A., et al, *Canada. Defence Research Establishment, Ottawa. DREO technical note*, Nov. 1979, DREO-TN-79-27, 26p., ADA-079 585, In English with French summary.
Barnes, W.D.
Electric power, Radio communication, Cold weather operation, Electric equipment.

34-2283
Suppression of river ice by thermal effluents.
Ashton, G.D., *U.S. Army Cold Regions Research and Engineering Laboratory*, Dec. 1979, CR 79-30, 23p., ADA-080 654, 5 refs.
River ice, Ice control, Thermal diffusion, Thermal pollution, Heat transfer.
The ice suppression resulting from discharge of warm water into rivers during winter is analyzed with emphasis on two different cases. In Part 1, the case of a thermal effluent fully mixed across the flow section is analyzed to include the effects of unsteadiness in the effluent temperature and the meteorological variations. The location of the ice edge is determined either by O C water temperature criterion or an equilibrium ice melting analysis. The choice of the applicable criterion emerges naturally from the analysis, even though the location of the ice edge may be considerably different when a steady-state analysis is done. In Part 2, the case of a side discharge of heated effluent is analyzed, also in an unsteady manner, and the effects of transverse dispersion are included in the analysis. Comparisons are made in Parts 1 and 2 to limited field data that are available.

34-2284
Mass water balance during spray irrigation with wastewater at Deer Creek Lake land treatment site.
Abele, G., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Aug. 1979, SR 79-29, 43p., ADA-080 649, 3 refs.
McKim, H.L., Brockett, B.E.
Water treatment, Waste treatment, Water balance, Sewage treatment, Irrigation.
The water budget for a 3.6-ha test area was calculated during and two days after a 2.7-cm (equivalent to 99,000 l) application of wastewater. By computing the water remaining in the soil from soil sample water content data, calculating the amount lost to evapotranspiration and measuring the underdrain flow rate, it was possible to calculate the water budget to within 95% of the actual amount applied. The accuracy in computing the soil water content is critical. In this case, a 1% variation of error in the volumetric water content is equivalent to nearly one third of the total water applied.

34-2285
Proceedings of the Seminar III on Dry Valley Drilling Project, 1978.
Nagata, T., ed, Tokyo. National Institute of Polar Research. Memoirs, Sep. 1979, Special issue No.13, 245p., Refs. For selected papers see E-22899, E-22900, E-22902 through 22922 and I-22901, or 34-2286 through 34-2289.
Research projects, Glacial geology, Drill core analysis, Ice composition, Snow composition, Permafrost structure.
The third seminar on the multi-national (United States-Japan-New Zealand) Dry Valley Drilling Project (DVDP) was held in Tokyo from June 5 to 10, 1978. The participants included twenty representatives from the U.S., five from New Zealand, two from Australia, twenty from Japan, and an audience of about twenty people. The seminar provided the opportunity to discuss scientific topics, problems concerning cooperative work, and future programs. Fifty papers were presented at eight sessions. The present volume contains 26 papers and abstracts.

34-2286
View on the formation of saline waters in the Dry Valleys.
Torii, T., et al, *Tokyo. National Institute of Polar Research. Memoirs*, Sep. 1979, Special issue No.13, Proceedings of the Seminar III on Dry Valley Drilling Project, 1978, edited by T. Nagata, p.22-33, 13 refs. For another version of this paper see 10F-20374, or 32-4377.
Yamagata, N., Ossaka, J., Murata, S.
Water chemistry, Salt water, Drill core analysis, Ice composition, Snow composition.
A previous report by Torii et al (1977, 9E-18530) on the salt balance in the Don Juan basin pointed out the presence of calcium excess when the total salt deposits in the basin are assumed to have resulted simply from the evaporation of sea water. Concerning the evolutionary processes of saline waters in the Dry Valleys, sources of the salts other than trapped sea water were not necessarily excluded, and sea spray, ion exchange and rock weathering theories have been suggested by many investigators. This paper presents the results obtained by further examination of the processes of saline water formation, on the basis of the analytical results of the DVDP cores from the Wright Valley, the information on the chemical characteristics of the water systems in the Dry Valleys, and a recent reconnaissance in the Labyrinth and the Pearse Valley. It is more likely that the chemical composition of waters in these saline lakes is mainly due to the atmospheric salt rather than the modification of trapped sea salt. (Auth.)

34-2287
Upper crustal structure under McMurdo Station, Antarctica, deduced from blasts during nuclear power plant removal.
Kaminuma, K., *Tokyo. National Institute of Polar Research. Memoirs*, Sep. 1979, Special issue No.13, Proceedings of the Seminar III on Dry Valley Drilling Project, 1978, edited by T. Nagata, p.34-41, 9 refs.
Glacial geology, Seismic surveys, Blasting, Antarctica—McMurdo Station.
The upper crustal structures beneath McMurdo Station are studied, using reflected waves of blasts for dismantling the nuclear power plant in Nov. and Dec. of 1975. A three-seismograph network was installed near the Thiel Earth Sciences Laboratory, and reflected waves of four blasts out of many were successfully observed. As the distances between the blast points and seismographs were only 300 m, refracted waves were not recorded. Though the velocities of seismic wave are not determined, the arrival times of clear phases of reflected waves are detected with high accuracy. The shortest travel time of reflected waves is approx 0.7 sec, and thickness of the first layer is 1.2 km if the P wave velocity of the layer is assumed to be 3.1 km/s. The travel time of all the well-identified latest phase is 3.95 sec. This study suggests the presence of five layers in the upper crust. (Auth.)

34-2288
Chemistry and clay mineralogy of cores 8, 9, 10, New Harbor, Antarctica.
Ugolini, F.C., et al, *Tokyo. National Institute of Polar Research. Memoirs,* Sep. 1979, Special issue No.13, Proceedings of the Seminar III on Dry Valley Drilling Project, 1978, edited by T. Nagata, p.84-102, Refs. p.99-102.
Deutsch, W., Harris, H.J.H.
Permafrost structure, Electrical resistivity, Ion density (concentration), Soil chemistry, Clay minerals.
Electrical conductivity and ionic composition of extracted solutions from ice-cemented permafrost from cores 8, 9, and 10 show that most of the sediments were deposited in a marine environment and that aggradation of permafrost during exposure of the sediments to subaerial conditions caused ionic concentration. Influx of brines capable of moving in permafrost is also suggested. Regions of low conductivity are interpreted either as freshwater episodes or textural discontinuities. Clay mineralogy can be separated into three major assemblages corresponding to the three major lithological units. The clay minerals show little weathering and complex irregular interstratification of mica-vermiculite-montmorillonite and chlorite. (Auth.)

34-2289
DVDP at the Florida State University: core storage and sample distribution.
Cassidy, D.S., *Tokyo. National Institute of Polar Research. Memoirs,* Sep. 1979, Special issue No.13, Proceedings of the Seminar III on Dry Valley Drilling Project, 1978, edited by T. Nagata, p.240-245, 13 refs.
Cores, Dry Valley Drilling Project.
Cores recovered by the Japan-New Zealand-United States Dry Valley Drilling Project (DVDP) in Antarctica are stored at the Florida State University's Antarctic Research Facility. More than 1100 m of DVDP drill core are stored at -23C, from which 3471 samples have been distributed to authorized investigators worldwide. All cores remain in excellent condition, and further research interest in them is invited. (Auth.)

34-2290
Microbiological studies of the central antarctic ice sheet. [Mikrobiologicheskie issledovaniia lednikovoĭ tolshchi tsentral'noĭ Antarktiki],
Abyzov, S.S., et al, *Akademiia nauk SSSR. Izvestiia. Seriia biologicheskaia,* 1979, No.6, p.828-836, In Russian with English summary. 26 refs.
Bobin, N.E., Kudriashov, B.B.
Microbiology, Cryobiology, Algae, Fungi, Ice sheets, Glacier ice, Antarctica—Vostok Station.
The ice sheet of Antarctic provides a unique opportunity to study the conservation of microorganisms under strong cooling for tens or, possibly, hundreds of years. Microbiological investigations of thickness of the glacier up to 312 meters have been carried out for the first time in Central Antarctic. It was established that the microorganism concentration in deep layers of the glacier was extremely small with fortuitous distribution along the glacier profile. The age of studied horizons with embedded viable microorganisms is 10-13 thousand years. Among the microorganisms found, the dominant ones are classified as bacteria. Microscopic fungi and yeasts were found as well. (Auth.)

34-2291
Regionalization of Poland's coast in terms of ice ridges piled on beaches. [Rejonizacja polskiej strefy przybrzeżnej pod względem powstawania spiętrzeń lodowych],
Zakrzewski, W., *Czasopismo geograficzne,* 1978, 49(1), p.3-16, In Polish with English summary. 18 refs.
Shores, Ice override, Drift, Floating ice, Baltic Sea.

34-2292
Safe working conditions on fast ice. [Bezopasnost' rabot na ledovom pripae],
Chuchukin, A., *Morskoĭ flot,* 1979, No.4, p.26-27, In Russian.
Ice wharves, Cargo, Safety, Logistics.
Precautions to be taken before and during unloading of cargo on an ice shelf are discussed. Two broad concerns face planners: avoidance of breakup of the ice itself, and preventing the ship from being entrapped.

34-2293
Recent relief-forming processes in Siberia. [Protsessy sovremennogo rel'efoobrazovaniia v Sibiri],
Ivanovskiĭ, L.N., ed, Irkutsk, 1978, 139p., In Russian. For selected papers see 34-2294 through 34-2298. Refs. passim.
Geocryology, Soil freezing, Frost penetration, Frost heave, Soil water migration, Pingos, Ice lenses, Slope processes, Alpine landscapes, Solifluction, Avalanches, Rock streams, Permafrost distribution, Snow cover distribution, Forest lines, USSR—Transbaikal.

34-2294
Recent exogenic relief-forming processes in Transbaikal steppes. [Izuchenie sovremennykh ekzogennykh protsessov rel'efoobrazovaniia v stepnom Zabaĭkal'e],
Titova, Z.A., et al, Protsessy sovremennogo rel'efoobrazovaniia v Sibiri (Recent relief-forming processes in Siberia) edited by L.N. Ivanovskiĭ, Irkutsk, 1978, p.3-21, In Russian. 5 refs.
Bazhenova, O.I.
Steppes, Soil freezing, Frost penetration, Snow cover effect, Snow surveys, Charts.

34-2295
Bald peaks in the Lake Baykal area and northern Transbaikal, their boundaries and distribution. [Gol'tsy Pribaĭkal'ia i severnogo Zabaĭkal'ia, ikh granitsy i rasprostranenie],
Vyrkin, V.B., Protsessy sovremennogo rel'efoobrazovaniia v Sibiri (Recent relief-forming processes in Siberia) edited by L.N. Ivanovskiĭ, Irkutsk, 1978, p.63-68, In Russian. 12 refs.
Alpine landscapes, Snow cover distribution, Glaciation, Forest lines, Rock streams, Bald peaks.

34-2296
Slope denudation in the bald peak zone of western Sayan. [Denudatsiia sklonov v gol'tsovom poiase Zapadnogo Saiana],
Rashba, I.N., Protsessy sovremennogo rel'efoobrazovaniia v Sibiri (Recent relief-forming processes in Siberia) edited by L.N. Ivanovskiĭ, Irkutsk, 1978, p.69-87, In Russian. 21 refs.
Alpine landscapes, Slope processes, Rock streams, Permafrost distribution, Frost weathering, Talus, Creep, Solifluction, Bald peaks.

34-2297
Rock streams and bald peak zones of the Lake Baykal area and northern Transbaikal. [Kurumy gol'tsov Pribaĭkal'ia i severnogo Zabaĭkal'ia],
Vyrkin, V.B., Protsessy sovremennogo rel'efoobrazovaniia v Sibiri (Recent relief-forming processes in Siberia) edited by L.N. Ivanovskiĭ, Irkutsk, 1978, p.88-108, In Russian. 35 refs.
Alpine landscapes, Rock streams, Slope processes, Solifluction.

34-2298
Frost heave in Transbaikal steppes. [Puchenie grunta v stepnom Zabaĭkal'e],
Bazhenova, O.I., Protsessy sovremennogo rel'efoobrazovaniia v Sibiri (Recent relief-forming processes in Siberia) edited by L.N. Ivanovskiĭ, Irkutsk, 1978, p.109-126, In Russian. 27 refs.
Geocryology, Soil freezing, Frost penetration, Frost heave, Soil water migration, Pingos, Ground ice, Ice lenses, Thermokarst, USSR—Transbaikal.

34-2299
International conference on meteorology of the Carpathian Mountains. Proceedings.
Mezhdunarodnaia konferentsiia po meteorologii Karpat, 7th, Tatranska Lomnica, Sep. 21-25, 1975, Bratislava, VEDA, 1979, 415p., In Russian, French and German. For selected papers see 34-2300 through 34-2305. Refs. passim.
Otruba, J., ed.
Hoarfrost, Measuring instruments, Synoptic meteorology, Snowfall, Precipitation gages, Snow cover distribution, Snow depth, Snow water equivalent, Icing, Meteorological data, Carpathian Mountains.

34-2300
Hydrologic effectiveness of continuous snow cover in the Moravian-Silesian Beskids. [Gidrologicheskaia effektivnost' sploshnogo snezhnogo pokrova v Moravsko-Silezskikh Beskidakh],
Lednický, V., et al, Mezhdunarodnaia konferentsiia po meteorologii Karpat, 7th, Tatranska Lomnica, Sep. 21-25, 1975 (International conference on meteorology of Carpathian Mountains, Sep. 21-25, 1975, Proceedings) edited by J. Otruba, Bratislava, VEDA, 1979, p.261-268, In Russian with French and German summaries. 7 refs.
Koničár, J.
Snow cover distribution, Snow water equivalent, Czechoslovakia—Beskids.

34-2301
Relationship between annual snow water content maxima and elevation in medium high mountains in the German Democratic Republic. [Die Seehöhenabhängigkeit der jährlichen Höchstwerte des Wassergehalts der Schneedecke im Mittelgebirge der DDR],
Zerche, M., Mezhdunarodnaia konferentsiia po meteorologii Karpat, 7th, Tatranska Lomnica, Sep. 21-25, 1975 (International conference on meteorology of Carpathian Mountains, Sep. 21-25, 1975, Proceedings) edited by J. Otruba, Bratislava, VEDA, 1979, p.269-273, In German with Russian and French summaries.
Snow cover distribution, Snow depth, Snow water content.

34-2302
Improving snow gage accuracy. [Verbesserung der Schneeniederschlagsmessung],
Pleiss, H., Mezhdunarodnaia konferentsiia po meteorologii Karpat, 7th, Tatranska Lomnica, Sep. 21-25, 1975 (International conference on meteorology of Carpathian Mountains, Sep. 21-25, 1975, Proceedings) edited by J. Otruba, Bratislava, VEDA, 1979, p.275-283, In German with Russian and French summaries. 5 refs.
Precipitation gages, Snowfall.

34-2303
Seasonal variations in the relationship between the number of days with snow cover and elevation in high mountains. [Der Jahresgang der Höhenabhängigkeit der Zahl der Tage mit Schneedecke im Hochgebirge],
Steinhauser, F., Mezhdunarodnaia konferentsiia po meteorologii Karpat, 7th, Tatranska Lomnica, Sep. 21-25, 1975 (International conference on meteorology of Carpathian Mountains, Sep. 21-25, 1975, Proceedings) edited by J. Otruba, Bratislava, VEDA, 1979, p.313-322, In German with Russian summary.
Mountains, Snow cover, Meteorological data.

34-2304
Climatic-synoptic characteristics of days with snowfall and snow cover in Eastern Serbia. [Klimato-sinopticheskie kharakteristiki dneĭ so snegom i snezhnym pokrovom v Vostochnoĭ Serbii],
Ranković, S., et al, Mezhdunarodnaia konferentsiia po meteorologii Karpat, 7th, Tatranska Lomnica, Sep. 21-25, 1975 (International conference on meteorology of Carpathian Mountains, Sep. 21-25, 1975, Proceedings) edited by J. Otruba, Bratislava, VEDA, 1979, p.335-345, In Russian with French summary. 5 refs.
Sokolović-Ilić, G.
Synoptic meteorology, Snow cover, Snowfall.

34-2305
Hoarfrost-ice deposits in West Carpathian Uplands. [Nekotorye kharakteristiki gololedno-izmorozevykh otlozheniĭ v vysokogornykh oblastiakh Zapadnykh Karpat],
Ostrožlík, M., Mezhdunarodnaia konferentsiia po meteorologii Karpat, 7th, Tatranska Lomnica, Sep. 21-25, 1975 (International conference on meteorology of Carpathian Mountains, Sep. 21-25, 1975, Proceedings) edited by J. Otruba, Bratislava, VEDA, 1979, p.363-371, In Russian with French and German summaries. 8 refs.
Hoarfrost, Icing, Measuring instruments, Meteorological factors, Czechoslovakia—Tatra Mountains.

34-2306
Biogeocenologic studies in planted meadows of East-European tundra. [Biogeotsenologicheskie issledovaniia na seianykh lugakh v vostochnoevropeiskoĭ tundre],
Archegova, I.B., ed, Leningrad, Nauka, 1979, 190p., In Russian with English table of contents enclosed. Refs. p.179-189.
Kotelina, N.S., ed.
Tundra, Meadow soils, Cryogenic soils, Vegetation, Soil chemistry, Nutrient cycle.

34-2307
Control of blasting effects on rocks and grounds. [Upravlenie deĭstviem vzryva v gruntakh i gornykh porodakh],
Vovk, A.A., ed, Kiev, Naukova dumka, 1979, 224p., In Russian. For selected papers see 34-2308 through 34-2311. Refs. passim.
Luchko, I.A., ed.
Mining, Artificial freezing, Blasting, Land reclamation, Seasonal freeze thaw, Drainage, Frozen ground, Channels (waterways), Cold weather construction.

34-2308
Reversible and irreversible changes in strength of grounds compacted by blasting. [Obratimye i neobratimye izmeneniia prochnostnykh pokazatelei uplotnaemykh vzryvom gruntov].
Chernyi, G.I., Upravlenie deistviem vzryva v gruntakh i gornykh porodakh (Control of blasting effects on rocks and grounds) edited by A.A. Vovk and I.A. Luchko, Kiev, Naukova dumka, 1979, p.41-52, In Russian. 3 refs.
Soil compaction, Blasting, Slope stability.

34-2309
Studying physical and mechanical properties of seasonally frozen grounds subject to blasting, for the construction of land reclamation objects. [Issledovanie fiziko-mekhanicheskikh svoistv sezonnomerzlykh gruntov pri stroitel'stve gidromeliorativnykh ob"ektov vzryvom].
Vorob'ev, V.D., et al, Upravlenie deistviem vzryva v gruntakh i gornykh porodakh (Control of blasting effects on rocks and grounds) edited by A.A. Vovk and I.A. Luchko, Kiev, Naukova dumka, 1979, p.132-138, In Russian. 2 refs.
Land reclamation, Swamps, Drainage, Channels (waterways), Blasting, Peat.

34-2310
Effectiveness of slotted blasting charges used in building channels in seasonally frozen grounds. [Effektivnost' primeneniia shchelevykh zariadov pri stroitel'stve kanalov v sezonnomerzlykh gruntakh].
Frash, G.B., et al, Upravlenie deistviem vzryva v gruntakh i gornykh porodakh (Control of blasting effects on rocks and grounds) edited by A.A. Vovk and I.A. Luchko, Kiev, Naukova dumka, 1979, p.138-142, In Russian. 5 refs.
Land reclamation, Drainage, Channels (waterways), Cold weather construction, Frozen ground, Blasting.

34-2311
Stress waves in artificially frozen water-saturated ground, studied after fuse detonation on test-benches and in mining shafts. [Issledovanie voln napriazhenii v zamorozhennykh vodonasyshchennykh gruntakh ot vzryva shnurovykh zariadov na polupromyshlennom stende i v stvolakh].
Oksanich, I.F., et al, Upravlenie deistviem vzryva v gruntakh i gornykh porodakh (Control of blasting effects on rocks and grounds) edited by A.A. Vovk and I.A. Luchko, Kiev, Naukova dumka, 1979, p.142-148, In Russian. 2 refs.
Mironov, P.S., Chmykhalov, V.S., Fesenko, O.G.
Mining, Blasting, Frozen ground, Artificial freezing, Stresses.

34-2312
Secrets of natural ice in Kazakhstan. [Tainy prirodnykh l'dov Kazakhstana].
Tokmagambetov, G.A., Alma-Ata, Nauka, 1978, 151p., In Russian with English table of contents enclosed. 11 refs.
Glaciology, Geocryology, Glacial hydrology, Snowfall, Avalanches, Mudflows, Permafrost distribution, USSR—Kazakhstan.

34-2313
Problems raised by frost action. Fundamental and applied researches (rocks and artificial building materials). Vol.2: scientific reports. [Les problèmes posés par la gélifraction. Recherches fondamentales et appliquées (roches et matériaux artificiels de construction). Vol.2: rapports scientifiques].
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Aguirre-Puente, J., ed.
Frost action, Freeze thaw cycles, Frost resistance, Frozen rocks, Rock mechanics, Construction materials, Saturation, Porosity, Low temperature tests.

34-2314
Structural steels usable at low temperature. [Les aciers de construction métallique utilisabl s aux basses températures].
Murry, G., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.7-17, In French.
Low temperature tests, Steels, Fracturing, Elastic properties, Temperature effects, Construction materials.

34-2315
Frost shattering observed on cracks at the surface of Gilman Glacier, Ellesmere Island. [Observations sur la gélifraction par fissures à la surface du glacier Gilman (Ile d'Ellesmere)].
Brochu, M., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.55-59, In French.
Frost shattering, Ice cracks, Glacier surfaces.

34-2316
Application of factor analysis to the study of patterned ground in polar environments. [Essai d'application de l'analyse factorielle des correspondances à l'étude des sols structurés en milieu polaire].
Brossard, T., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.61-71, In French with English summary. 2 refs.
Patterned ground, Frost action, Slope orientation, Polar regions, Topographic features, Vegetation factors, Classifications.

34-2317
Some observations about rock weathering by frost upon the wall carvings.
Fukuda, M., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.73-79, In English with French summary. 8 refs.
Frost weathering, Rock properties, Freeze thaw tests, Frost action, Porosity, Moisture, Physical properties, Frozen rocks.

34-2318
Detection of frost shattering in high mountains by means of photography in the blue and near ultraviolet spectra. [Détection de la gélifraction en haute montagne au moyen de la photographie dans le spectre du bleu et du proche ultra-violet].
Galibert, G., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.81-92, In French with English summary. 2 refs.
Frost shattering, Slope orientation, Mountains, Photographic techniques, Spectroscopy.

34-2319
Influence of cryogenic processes on clay minerals.
Konishchev, V.N., et al, *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.93-101, In English with French summary. 11 refs.
Rogov, V.V., Shchurina, G.N.
Geocryology, Clay minerals, Freeze thaw cycles, Microstructure, Periglacial processes, Moisture, Infrared spectroscopy.

34-2320
Experimental studies of frost shattering at the Center for Geomorphology of the French National Center for Scientific Research. [Les recherches de gélifraction expérimentale du Centre de Géomorphologie du C.N.R.S.].
Lautridou, J.P., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.103-110, In French with English summary. 10 refs.
Frost shattering, Rock mechanics, Frost action, Frost weathering, Porosity, Tests.

34-2321
Superimposed rockfalls and climatic changes in northwestern Greenland. [Éboulis superposés et changements climatiques dans le nord-ouest du Groenland].
Malaurie, J., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.117-128, In French with English summary. 18 refs.
Rock mechanics, Frost action, Freeze thaw cycles, Erosion, Climatic changes, Geomorphology, Stratification, Paleoclimatology.

34-2322
Correlation of rock weathering parameters.
Hudec, P.P., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.147-156, 25 refs.
Frost weathering, Frozen rocks, Rock mechanics, Freeze thaw cycles, Porosity, Moisture.

34-2323
Freeze-thaw tests and theories of frost action. [Les essais cycliques de gel et dégel et les théories de la gélivité].
Blachere, J.R., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.1[illegible]-166. In French with English summary. 10 refs.
Freeze thaw tests, Frost action, Clays, Construction materials, Porosity, Ice pressure, Temperature effects, Theories.

34-2324
Studies of the destruction mechanism at freezing of porous materials.
Fagerlund, G., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.167-196, In English with French summary. 18 refs.
Frost action, Porous materials, Freezing, Frost resistance, Saturation, Damage, Construction materials, Salinity, Analysis (mathematics).

34-2325
Relation between the frost resistance and the mechanical and porometric characteristics of a terra cotta fragment. [Relation entre la tenue au gel d'un tesson de terre cuite et ses caractéristiques mécaniques et porométriques].
Fontaine, L., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.197-211, In French with English summary. 8 refs.
Frost resistance, Ceramics, Porosity, Mechanical properties, Analysis (mathematics).

34-2326
Methods of testing frost resistance of concretes. [Méthodes d'essai pour la gelivité des bétons].
Houiou, A., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.213-224, In French with English summary. 2 refs.
Frost resistance, Concrete strength, Freeze thaw cycles, Frost action, Saturation, Tests.

34-2327
Methods of testing frost resistance of stone. [Méthodes d'essais au gel des pierres].
Mamillan, M., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.225-238, In French with English summary. 3 refs.
Frost resistance, Rocks, Porosity, Saturation, Freeze thaw cycles, Masonry, Climatic factors, Tests, Frozen rocks.

34-2328
Experimental studies of frost shattering of ceramic tiles. [Recherches expérimentales sur la gélifraction des tuiles en céramique].
Muresan, M., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.239-249, In French with English summary. 26 refs.
Frost shattering, Ceramics, Frost resistance, Freeze thaw tests.

34-2329
What do we know about freezing of concrete. [Que savons-nous du gel du béton?].
Venuat, M., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.251-260, In French with English summary.
Freeze thaw cycles, Concrete strength, Concrete structures, Damage, Saturation, Mortars.

34-2330
Model of freezing in porous media applied to an actual case. [Modèle destiné à la simulation du gel dans les milieux poreux. Application en cas réel].
Adier-Vignes, M., et al, *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.263-269, In French with English summary. 3 refs.
Dijkema, K.M.
Porous materials, Freezing, Ice water interface, Models, Capillary ice.

34-2331
Physical mechanism of freezing in rocks. [Contribution à l'étude du mécanisme physique du gel des roches].
Aguirre-Puente, J., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.271-284, In French with English summary. 10 refs.
Frozen rocks, Physical properties, Freeze thaw cycles, Damage, Freezing, Rocks.

34-2332
Ice growth at a porous plate and at a single capillarity.
Biermans, M., et al, *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.285-293, In English with French summary. 5 refs.
Dijkema, K.M.
Ice crystal growth, Porous materials, Ice water interface, Temperature effects, Capillary ice, Ultrasonic tests.

34-2333
Freezing of water in porous materials. [Le gel de l'eau dans les matériaux poreux].
Blachere, J.R., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.295-303, In French with English summary. 13 refs.
Freezing, Porous materials, Frost action, Saturation, Freeze thaw tests, Damage, Thermodynamics.

34-2334
Exact solution for freezing of humid porous half-space.
Mikhailov, M.D., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.305-313, In English with French summary. 5 refs.
Freezing, Porous materials, Moisture, Heat transfer, Stefan problem, Temperature effects, Analysis (mathematics).

34-2335
Frost shattering of wet rock. [Gélifraction des roches humides],
Bertouille, H., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.315-328, In French with English summary. 4 refs.
Frost shattering, Rock mechanics, Frozen rocks, Saturation, Porosity, Fracturing, Analysis (mathematics).

34-2336
Experimental and numerical simulation of the thermal behavior of a road structure subjected to a freeze-thaw cycle. [Comportement thermique d'une structure routière soumise à un cycle de gel-dégel. Simulations expérimentale et numérique],
Caniard, L., et al, *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.329-342, In French with English summary. 12 refs.
Dupas, A., Frémond, M., Levy, M.
Pavement bases, Freeze thaw cycles, Thermal conductivity, Analysis (mathematics), Experimentation, Computer applications.

34-2337
Study of freezing mechanisms in Caen rock. [Etude des mécanismes du gel dans la Pierre de Caen],
Lautridou, J.P., et al, *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.343-358, In French with English summary. 6 refs.
Mazo, L., Ozouf, J.C., Benoist, J.P.
Frozen rocks, Freezing, Moisture, Water table, Temperature effects.

34-2338
Use of ultrasonic waves to monitor the propagation of the freezing front in carbonaceous rocks. [Utilisation des ondes ultrasonores pour le suivi de la propagation du front de gel dans les roches carbonatées],
Masson, M., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.359-365, In French. 8 refs.
Frozen rocks, Freezing, Porosity, Fracturing, Ultrasonic tests.

34-2339
Proposed size classification for the texture of frozen earth materials.
McGaw, R.W., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.267-275, In English with French summary. 4 refs.
Frozen ground physics, Soil freezing, Freezing rate, Ice lenses, Frost heave, Soil water migration, Heat transfer, Porosity, Classifications.

34-2340
Influence of normal fluxes on convective transfer at an interface. [Influence de flux normaux sur le mouvement convectif d'interface],
Prud'homme, R., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.377-392, In French with English summary. 8 refs.
Rocks, Fracture zones, Convection, Interfaces, Gravity, Thermal effects, Mathematical models.

34-2341
Discussion about the freezing point depression in small pores.
Haynes, J.M., et al, *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.393-397, 4 refs.
Wyatt, D.A.
Freezing points, Capillary ice, Thermodynamics, Ice water interface, Porous materials, Freeze thaw cycles, Phase transformations.

34-2342
Wind action in frost shattering processes. [L'action du vent dans les processus de gélifraction],
Brochu, M., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.401-404, In French. 2 refs.
Frost shattering, Wind factors, Saturation, Temperature effects, Humidity.

34-2343
Thermal conductivity of soils and rocks.
Johansen, Ö., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.407-420, In English with French summary. 19 refs.
Thermal conductivity, Frost action, Soil water, Rocks, Thermal regime, Heat transfer, Saturation, Vapor diffusion.

34-2344
Practical trials of insulants made from plastics for frost-protection in road and railroad construction: comparison of theory and practice.
Apostolopoulos, C., et al, *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.421-437.
Schneider, W.
Thermal insulation, Frost protection, Cellular plastics, Pavements, Roads, Railroads, Frost resistance, Construction, Design criteria.

34-2345
Heating of moist bodies.
Srivastava, K.K., et al, *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.439-445, 1 ref.
Pandey, R.N.
Heating, Heat transfer, Moisture, Temperature distribution, Drying, Analysis (mathematics).

34-2346
Integral balance approach for determination of heat transfer potential in porous bodies under different types of boundary conditions.
Srivastava, K.K., et al, *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.447-457, 3 refs.
Pandey, R.N.
Heat transfer, Porous materials, Boundary layer, Phase transformations, Analysis (mathematics).

34-2347
Heating of solid of simple geometry when the surrounding temperature is a harmonic function of time.
Srivastava, K.K., et al, *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.459-466, 1 ref.
Pandey, R.N.
Heat transfer, Thermal conductivity, Temperature distribution, Solids, Time factor, Analysis (mathematics).

34-2348
Numerical sumulation of a horizontal porous layer heated from below. [Simulation numérique d'une couche poreuse horizontale chauffée par le dessous],
Caltagirone, J.P., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.467-479, In French with English summary. 14 refs.
Heating, Porous materials, Convection, Thermal conductivity, Temperature variations, Isotherms, Analysis (mathematics).

34-2349
Thermal regime in road constructions; measurements and simulation.
Frivik, P.E., et al, *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.482-496, In English with French summary. 7 refs.
Pedersen, J.M.
Thermal regime, Road icing, Construction, Freezing, Frost protection, Climatic factors, Surface temperature, Air temperature, Analysis (mathematics), Tests, Temperature measurement.

34-2350
Thermal climate regime on road and ground surface.
Heiersted, R.S., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.497-509, In English with French summary. 5 refs.
Thermal regime, Freezing indexes, Frost penetration, Pavements, Surface temperature, Air temperature, Roads, Climatic factors, Frost action, Thermal radiation, Snow depth, Seasonal variations.

34-2351
Heat pipes as applied to thermal control of frozen ground.
Vasil'ev, L.L., et al, *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.51 -520, 3 refs.
Konev, S.V.
Permafrost control, Frozen ground temperature, Heat pipes, Permafrost beneath structures, Low temperature tests.

34-2352
Radiative cooling of layers of pebble. [Refroidissement par rayonnement des couches de cailloux],
Bernard, J.J., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.521-524, In French.
Gravel, Radiant cooling, Conduction, Convection, Analysis (mathematics).

34-2353
Thermohydrodynamic model of a large ice sheet. [Termogidrodinamicheskaia model' krupnogo lednikovogo shchita],
Verbitskii, M.IA., et al, *Akademiia nauk SSSR. Doklady*, Jan.-Feb. 1980, 250(1), p.59-61, In Russian. 9 refs.
Chalikov, D.V.
Glacier surfaces, Glacier flow, Ice temperature, Glacier melting, Ice sheets, Snow accumulation, Thermal conductivity, Mathematical models.
A three-dimensional mathematical model of an ice sheet is proposed, based on a combined solution of equations for dynamics and thermal conductivity, with the surface relief as one of the unknown functions. A numerical experiment conducted with the model, using the West Antarctic and Greenland ice sheets, is described.

34-2354
Geological surveys of peat fields by radio echo sounding. [Geologicheskaia razvedka torfianykh mestorozhdenii metodom radiolokatsionnogo zondirovaniia],
Bogorodskii, V.V., et al, *Akademiia nauk SSSR. Doklady*, 1980, 250(2), p.316-318, In Russian. 4 refs.
Trepov, G.V.
Peat, Radar echoes, Geological surveys, Swamps, Measuring instruments, Cold weather performance.

34-2355
Semiconductor resistance thermometers for the interval 300-0.3K.
Zinov'eva, K.N., et al, *Instruments and experimental techniques*, Dec. 1979, 22(3), Pt.2, p.845-847, Translated from Pribory i tekhnika eksperimenta, May-June 1979, No.3, p.214-216. 8 refs.
Zarubin, L.I., Nemish, I.IU., Vorobkalo, F.M., Boldarev, S.T.
Resistance thermometers, Semiconductors ([illegible]als), Low temperature tests.

34-2356
Switzerland and its glaciers from the [illegible] present. [Die Schweiz und ihre Gletsch[illegible] zeit bis zur Gegenwart], Zurich, Schwei[illegible]er-kehrszentrale, 1979, 191p., Refs. p.184-185
Mountain glaciers, Glacier oscillation, Glacier [illegible] Glacier tongues, Paleoclimatology, Avalanches, [illegible]zerland.

34-2357
Marine transportation systems of the Trans-Alaska Pipeline System. Washington, D.C., U.S. Coast Guard, 1971, 158p. PB-206 592.
Marine transportation, Navigation, Oil spills, Water pollution.

34-2358
Comparative study of microwave radiometer observations over snowfields with radiative transfer model calculations.
Chang, A.T.C., et al, *U.S. National Aeronautics and Space Administration. Technical memorandum*, May 1979, NASA-TM-80267, 31p. N79-30611.
Shiue, J.C.
Microwaves, Radiometry, Snow cover, Runoff, Mathematical models.

34-2359
Improved drainage and frost action criteria for New Jersey pavement design—Phase III: Structural strength of pavements with open-graded bases.
Barker, W.R., et al, *U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. Report*, Aug. 1979, No.79-002-7740, c82p., ADA-075 111. This report with title "Structural evaluation of open-graded bases for highway pavements," also identified as U.S. Army Engineer Waterways Experiment Station, Miscellaneous paper GL-79-18. 20 refs. For Phase II reports of this project see 32-4380 (CRREL SR 78-09) and 33-4228 (CRREL SR 79-15).
Gunkel, R.C.
Pavement bases, Porous materials, Compressive properties, Shear strength, Dynamic loads.

34-2360
Arctic marine technology: a review of ship resistance in ice.
Peirce, T.H., *Naval architect*, July 1979, No.4, p.219-235, Includes discussion and author's reply. 8 refs.
Ships, Sea ice, Ice cover thickness, Ice breaking.

34-2361
Extra roadbuilding skills beat Arctic's winter weather. *Engineering and contract record*, Jan. 1980, 93(1), p.60-62
Roads, Cold weather construction, Canada—Yukon Territory.

34-2362
Floristic regions of the world. [Floristicheskie oblasti Zemli].
Takhtadzhian, A.L. Leningrad, Nauka, 1978, 247p., In Russian. Refs. p.219-247. Pertinent p. 15-50. DLC QK101 T3
Arctic landscapes, Alpine landscapes, Cryogenic soils, Plant ecology, Vegetation, Ecosystems, Plant physiology, Antarctica.
The biogeography of Holantarctis is discussed in terms of the following subregions: Fernadnezian, Chilean-Patagonian, the South subantarctic islands, including Kerguelen, and the Neozealandic Province, including the subantarctic islands south of New Zealand.

34-2363
Effects of seasonal changes and ground ice on electromagnetic surveys of permafrost.
Arcone, S.A., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Oct. 1979, CR 79-23, 33p. ADA-077 903
Delaney, A.J., Sellmann, P.V.
Permafrost distribution, Electromagnetic prospecting, Seasonal variations, Ground ice.
The performance of surface impedance and magnetic induction electromagnetic subsurface exploration techniques was studied seasonally at various sites in Alaska where permafrost and massive ground ice occurred. The methods used have greatest sensitivity within about 20 m of the surface and are, therefore, most applicable for shallow subsurface investigations. The selection of study sites was based on anticipated contrasts in electrical resistivity between ground ice and adjacent earth materials. A magnetic induction instrument, using a separation of 3.66-m between the transmitter and receiver antennas, in general was able to detect near-surface zones of massive ice and to provide data regarding permafrost distribution in both the Fairbanks and Prudhoe Bay areas.

34-2364
Use of 15N to study nitrogen transformations in land treatment.
Jenkins, T.F., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Sep. 1979, SR 79-31, 32p. ADA-077 583.
Quarry, S.T., Iskandar, I.K., Edwards, A.P., Hare, H.E.
Waste disposal, Water treatment, Irrigation, Soil chemistry.
The objective of this study was to compare different strategies of using 15N as a tracer to describe the fate of wastewater N in land application of wastewater. Four soil columns were packed with Windsor sandy loam soil and covered with forage grass. The columns were treated with 7.5 cm of either tapwater or wastewater according to four experimental strategies. The strategies varied the treatment given the soil prior to application of the 15N label, the schedule and amounts of the applied 15N label, and the type of water used for subsequent column leaching. Soil solution at depth and leachate were analyzed weekly for concentration and 15N content of nitrate and ammonium. Plant samples were obtained periodically throughout the experiment and, together with soil samples collected at the end of the experiment, analyzed for total nitrogen content and 15N/14N ratios.

34-2365
Utilization of sewage sludge for terrain stabilization in cold regions. Pt. 3.
Rindge, S.D., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*. Oct. 1979, SR 79-34, 33p. ADA-077 585.
Gaskin, D.A., Palazzo, A.J.
Waste disposal, Sewage disposal, Soil stabilization.
The authors have conducted a two-year revegetation study to assess the ability of sewage sludge applications with or without supplemental fertilizer to promote plant growth and stabilize sloping soils. The study site was a west-facing, 16 deg slope at CRREL in Hanover, New Hampshire. Eight revegetation treatments and one control were replicated three times. Treatments involved applications of dewatered, anaerobically digested sewage sludge at two rates (20 or 40 tons/acre). The sludge was applied alone or in combination with commercial fertilizers which supplied nitrogen, phosphorus and potassium, or all three nutrients. The seed mixture in the treatments contained four grasses and one legume. The effects of the various treatments were determined through soil loss yields, visual grass ratings and plant yields.

34-2366
Gamma dose rate test report for subsystem level evaluation of the ice detector B-1 program.
Richardson, T.D., *Rockwell International, Los Angeles. B-1 Div. Report*, Apr. 1977, NA-76-437-1, 28p., ADB-043 135L, Distribution limited to U.S. Government agencies only.
Measuring instruments, Ice detection, Aircraft icing, Gamma irradiation.

34-2367
Sandwich-type FLIR windows.
Donadio, R., et al, Waltham, Massachusetts, Raytheon Co., 1979, 176p., ADB-042 424L, Distribution limited to U.S. Government agencies only.
Connolly, J., Pappis, J.
Windows, Cold weather performance.

34-2368
Northern Smith Sound oceanography—summer 1977.
Tooma, S.G., *U.S. Naval Research and Development Activity. NSTL Station, MS. Report*, Mar. 1978, NORDA-TN-21, 28p. ADA-079 885.
Oceanography, Polynyas, Water structure, Smith Sound.

34-2369
Statistical methods of probable use for understanding remote sensing data.
Gaver, D.P., *U.S. Naval Postgraduate School. Technical report*, Oct. 1979, NPS55-79-020, 40p. ADA-076 908.
Statistical analysis, Ice formation, Pressure ridges, Remote sensing.

34-2370
Airflow effects on riming measurements by a wing tip-mounted detector on MC-130E research airplane.
Norment, H.G., Bedford, Massachusetts, Atmospheric Science Associates, 1979, 40p. ADA-077 019.
Ice detection, Measuring instruments, Airborne equipment, Aircraft icing.

34-2371
Scale model ultrasonic study of Arctic ice. Part 2.
Himberger, D.E., et al, *Georgetown University. Dept. of Physics. Report*, Dec. 1979, GUUS-127910, 64p. ADA-079 401, M.Sc. thesis.
Mayer, W.G.
Sea ice, Ice acoustics, Ice bottom surface, Ice cover thickness, Computer applications.

34-2372
Considerations on the origin and properties of the antarctic aerosol.
Shaw, G.E., *Reviews of geophysics and space physics*, Nov. 1979, 17(8), p.1983-1998, Refs. p.1996-1998.
Aerosols, Snow composition, Ice composition, Particle size distribution.
Information pertaining to aerosols and to microparticles, preserved in snow and ice on the high plateau of Antarctica, is assembled and interpreted with a diffusive transport model. The boundary conditions for the problem involve the existence of a two-mode microparticle size distribution function. The smaller (Aitken) mode likely consists of converted products from nucleation of trace gases, the particles are less than 2-3 days old and are produced locally over the ice caps at a production rate of 4x10 exp 21/g/cu cm/s. The Aitken particles are present in concentrations of 100-1,000/cu cm throughout the troposphere, except in the lowest few hundred meters within the turbulent boundary layer, where they are depleted. The Aitken particles are probably composed of converted sulfates and hydrocarbons. Large particles approx 0.4 microm in radius are also found in Antarctica, in concentrations of 0.5/cu cm; these particles dominate the aerosol mass. The large particles are estimated to have come from (1) unidentified sulfate sources, (2) oceanic sources surrounding the continent, (3) arid regions in the southern hemisphere, (4) extraterrestrial sources, and (5) oases on the continent, in that order of importance. Turbulent diffusion seems to be the primary particle transport mechanism. Particle removal mechanisms are discussed.

34-2373
XV 859; the Falkland Island craft.
Russell, B.J., *Hovering craft and hydrofoils*, Jan. 1978, 17(4), p.13-17.
Air cushion vehicles, Falkland Islands.
Built by the British Hovercraft Corporation for operation by the Falkland Island Hovercraft Detachment, the SR.N6 Mk 1 hovercraft's main task is to transport 12 fully equipped Royal Marines to any position in the Falkland Islands day or night. In addition, the craft has been employed to support the marines on detachment for such tasks as aircraft spotting and casualty evacuation. Notable achievements of the craft include complete circumnavigation of the Falklands, either around the islands or in a figure 8 through the Falkland Sound. Many overland journeys were made. Topographical details of the Falkland Islands are discussed. Following refurbishment in Fleetlands, the craft was returned to service in 1974, and has been employed in driver training, demonstrations, logistics tasks, and navigational exercises.

34-2374
Mass and energy exchange between the ice sheet of Antarctica and the atmosphere.
Aver'ianov, V.G., *Polar geography*, Oct.-Dec. 1979, 3(4), p.189-202, Translated from Akademiia nauk SSSR. Izvestiia. Seriia geograficheskaia, 1979, No.1, p.22-30. 23 refs.
Ice sheets, Mass balance, Ice air interface, Heat balance, Radiation balance.
The values of the components of the heat budget of the ice surface, of the atmosphere above it, and of the ice surface-atmosphere system are found, mainly by indirect methods, for Antarctica as a whole. (Auth.)

34-2375
Experience in the construction of pile foundations under frozen-ground conditions in the Vorkuta region.
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Targulian, IU.O., Vlokh, V.P.
Pile structures, Pile driving, Frozen ground strength, Permafrost beneath structures, Soil composition.

34-2376
Generalization of experience in constructing buildings on fill.
Goriainov, G.F., et al, *Soil mechanics and foundation engineering*, Jan. 1980, 16(4), p.185-188, 7 refs., Translated from Osnovaniia, fundamenty i mekhanika gruntov.
Semenova, T.K.
Rock fills, Cold weather construction, Buildings, Permafrost beneath structures.

34-2377
Experimental field studies of the seismic properties of solidly frozen ground in the zone of the Baikal-Amur mainline with the use of explosions.
Pavlenov, V.A., et al, *Soil mechanics and foundation engineering*, Jan. 1980, 16(4), p.202-206. 6 refs., Translated from Osnovaniia, fundamenty i mekhanika gruntov.
Dzhurik, V.I., Zarubin, N.E.
Frozen ground physics, Seismic surveys, Explosion effects, Permafrost beneath structures, Railroad tracks, Earthquakes, Water.

34-2378
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Chubarova, N.F., et al, *Soil mechanics and foundation engineering*, Jan. 1980, 16(4), p.228-230, Translated from Osnovaniia, fundamenty i mekhanika gruntov.
Vodolazkin, V.M., Staritsyn, A.P.
Frozen ground physics, Artificial thawing, Ground thawing, Cryogenic structures, Deformation, Soil compacting, Soil composition, Tests.

34-2379
Effect of specimen temperature on the breaking point for splitting off in AMG-6 aluminum alloy.
Bat'kov, IU.V., et al, *Journal of applied mechanics and technical physics*, Nov. 1979, 20(3), p.265-268, 10 refs.
Novikov, S.A., Sinitsyn, V.A., Sobolev, IU.S., Chernov, A.V.
Construction materials, Loads (forces), Strength, Tensile properties, Temperature effects, Aluminum, Shock waves, Impact strength.

34-2380
Influence of water transport and transfer of heat by freezing and defrosting on soil genesis.
Makeev, O.M., et al, Symposium on Fundamentals of Transport Phenomena in Porous Media, 2nd, Guelph, Ont., Canada, Aug. 7-11, 1972. Vol.2, University of Guelph, 1972, p.699-712, 7 refs.
Dugarov, V.I.
DLC TC176.S9 1972
Soil formation, Freeze thaw cycles, Soil water migration, Heat transfer.

34-2381
Construction research. Thermal physics. Structural durability. [Issledovaniia po stroitel'stvu. Stroitel'naia teplofizika. Dolgovechnost' konstruktsii]
Tallin, Valgus, 1979, 180p., In Russian. For selected articles see 34-2382 through 34-2384.
Concrete aggregates, Large panel buildings, Frost resistance, Concretes, Heat transfer.

34-2382
Heat and moisture transfer in experimental wall panels with the (FSP) phenol-formaldehyde plastic thermal insulation. [Teplovlazhnostnye svoistva eksperimental'nykh stenovykh panelei, uteplennykh fenoplastom (FSP)].
Alumiae, A.E., Issledovanie po stroitel'stvu. Stroitel'naia teplofizika. Dolgovechnost' konstruktsii (Construction research. Thermal physics. Structural durability), Tallin, Valgus, 1979, p.30-39, In Russian.
Residential buildings, Large panel buildings, Walls, Panels, Thermal insulation, Heat transfer, Moisture.

34-2383
Quick method of forecasting frost resistance of autoclaved slate-ash cellular concrete. [Uskorennyi metod prognozirovaniia morozostoikosti avtoklavnogo slantsezol'nogo gazobetona],
Kremerman, T.B., et al, Issledovanie po stroitel'stvu Stroitel'naia teplofizika. Dolgovechnost' konstruktsii (Construction research. Thermal physics. Structural durability), Tallin, Valgus, 1979, p.123-126, In Russian. 2 refs.
Galibina, E.A.
Cellular concretes, Concrete aggregates, Frost resistance.

34-2384
Frost resistance and mechanical properties of calcareous sandstone concrete. [Morozostoikost' i mekhanicheskie svoistva izvestkovo-peschanogo betona],
Marmor, Kh.G., et al, Issledovanie po stroitel'stvu Stroitel'naia teplofizika. Dolgovechnost' konstruktsii (Construction research. Thermal physics. Structural durability), Tallin, Valgus, 1979, p.127-134, In Russian. 6 refs.
Kreis, U.I., Laas, Kh.IU., Teigar, A.I.
Concretes, Concrete aggregates, Sands, Liming, Cements, Frost resistance.

34-2385
Glaciation of southeastern Jotunheimen and adjacent areas, south Norway. [Innlandsisens avsmelting sørøstlige Jotunheimen og tilgrensende omrader],
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Raastad, H., Sollid, J.L.
Glacier flow, Glacial hydrology, Ice sheets, Glacial geology.

34-2386
Identification of some Norwegian mountain soil types.
Ellis, S., *Norsk geografisk tidsskrift*, 1979, 33(4), p.201-212, 44 refs.
Mountain soils, Classifications, Norway.

34-2387
Neoglaciation in western Norway—preliminary results.
Hole, N., et al, *Norsk geografisk tidsskrift*, 1979, 33(4), p.213-215, 1 ref. Summary of a paper read at a symposium on neoglaciation held at the University of East Anglia in Feb. 1977.
Sollid, J.L.
Glaciation, Ice formation, Cirques, Moraines.

34-2388
Volumetric constitutive law for snow based on a neck growth model.
Brown, R.L., *Journal of applied physics*, Jan. 1980, 51(1), p.161-165, 10 refs.
Snow mechanics, Snow deformation, Snow crystal structure, Models.

34-2389
Viscosity of the ice surface layer.
Mantovani, S., et al, *Journal of chemical physics*, Jan. 15, 1980, 72(2), p.1077-1083, 27 refs.
Valeri, S., Loria, A., Del Pennino, U.
Ice crystals, Thermal effects, Strain tests, Viscosity.

34-2390
Subarctic watershed research in the Soviet Union.
Slaughter, C.W., et al, *Arctic bulletin*, 1978, 2(13), MP 1273, p.305-313, For another version of this report see 32-1318 (CRREL SR 77-15). 6 refs.
Bilello, M.A.
Water balance, Stations, Research projects, International cooperation, USSR—Magadan.

34-2391
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Péwé, T.L., *Arctic bulletin*, 1978, 2(13), p.321-326.
Meetings, Research projects, Permafrost.

34-2392
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Palmer, J.D., *Materials performance*, Jan. 1974, 13(1), p.41-46, 4 refs.
Soil chemistry, Electrical resistivity, Corrosion, Canada—Ontario.

34-2393
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Stratfull, R.F., *Materials performance*, Apr. 1974, 13(4), p.24-25, 8 refs.
Bridges, Corrosion, Electrical resistivity, Chemical ice prevention.

34-2394
Corrosion, deicing salts, and the environment.
Chance, R.L., *Materials performance*, Oct. 1974, 14(10), p.16-22, 39 refs.
Chemical ice prevention, Salting, Corrosion, Environments.

34-2395
Local conditions and frost penetration depth. [Örtliche Bedingungen und Frosttiefe],
Recordon, E., *Strasse und Verkehr*, Aug. 1972, 58(8), p.378-383, In German and French.
Frost penetration, Roads, Subgrade soils, Soil water, Drainage.

34-2396
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Balduzzi, F., et al, *Strasse und Verkehr*, Aug. 1972, 58(8), p.384-388, In German and French.
Bonjour, J.E.
Roads, Bearing strength, Bearing tests, Frost resistance.

34-2397
STYROPOR-concrete as frost protection and load-bearing layer in road construction. [STYROPOR-Beton als Frostschutz- und Tragschicht im Fahrbahnbau],
Hohwiller, F., *Strasse und Verkehr*, Nov. 1972, 58(11), p.499-508, In German. 11 refs.
Construction, Subgrade preparation, Thermal insulation, Concrete aggregates, Cellular concretes, Cellular materials.

34-2398
Coastal sedimentary processes and sediments, southern Canadian Beaufort Sea.
Lewis, C.P., et al, *Canada. Beaufort Sea Project. Technical report*, Dec. 1975, No.24, 68p., 19 refs.
Forbes, D.L.
Oil spills, Coastal topographic features, Shore erosion, Sediment transport, Ground ice, Permafrost, Flooding.

34-2399
Open water surface currents.
MacNeill, M.R., et al, *Canada. Beaufort Sea Project. Technical report*, Dec. 1975, No.17, 113p., 19 refs.
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Ocean currents, Wind velocity, Wind direction, Oil spills, Storms.

34-2400
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Snowfall, Density (number/volume), Airplanes.

34-2401
Mechanism of winter blooming of microalgae in Peter the Great Bay (Sea of Japan).
Vyshkvartsev, D.I., et al, *Soviet journal of marine biology*, Jan.-Feb. 1979, 5(1), p.53-54. Translated from Biologiia moria, No.1, 1979. 15 refs.
Konovalova, G.V.
Algae, Microbiology, USSR—Peter the Great Bay.

34-2402
Deterioration and protection of industrial structures. [Iznos i zashchita konstruktsii promyshlennykh zdanii],
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Industrial buildings, Heat loss, Icing, Heat transfer, Soil freezing, Frost heave.

34-2403
Heat transfer through joints in external enclosures of industrial buildings in the North. [Teplotekhnicheskie kachestva uzlov sopriazheniia naruzhnykh ograzhdaiushchikh konstruktsii promyshlennykh zdanii na Severe],
Butlitskii, A.E., et al, *Moscow. Tsentral'nyi nauchno-issledovatel'skii i proektno-eksperimental'nyi institut promyshlennykh zdanii i sooruzhenii. Trudy*, 1976, Vol.7, p.59-75, In Russian. 5 refs.
Golubchikova, O.G.
Industrial buildings, Walls, Joints (junctions), Heat loss, Moisture transfer, Icing.

34-2404
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Grushko, V.IA., Duranov, E.F.
Cooling systems, Refrigeration, Foundations, Soil freezing, Frost heave.

34-2405
Experimental determination of the thermal activity coefficient of floors. [K metodike eksperimental'nogo opredeleniia koeffitsienta teplovoi aktivnosti polov],
Gindoian, A.G., et al, *Moscow. Tsentral'nyi nauchno-issledovatel'skii i proektno-eksperimental'nyi institut promyshlennykh zdanii i sooruzhenii. Trudy*, 1976, Vol.7, p.108-124, In Russian.
Filippov, N.P.
Buildings, Floors, Heat transfer, Heat loss.

34-2406
Submarine permafrost on the Alaskan continental shelf.
Vigdorchik, M.E., Boulder, Colorado, Westview Press, 1980, 118p., Refs. p.111-118.
Subsea permafrost, Glaciation, Shoreline modification, Permafrost physics, Paleoclimatology, Geomorphology, Topography, Mapping, Beaufort Sea, Chukchi Sea.

34-2407
Arctic Pleistocene history and the development of submarine permafrost.
Vigdorchik, M.E., Boulder, Colorado, Westview Press, 1980, 286p., Refs. p.245-286.
Subsea permafrost, Glaciology, Sea ice distribution, Ice melting, Paleoclimatology, Pleistocene, Shoreline modification, Thermodynamic properties, Salinity, History, Polar regions.

34-2408
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Bridges, Pipes (tubes), Frost heave.

34-2409
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Rusten, A., et al, *American Society of Civil Engineers. Structural Division. Journal*, Jan. 1980, 106(ST1), p.11-21, 31 refs.
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Snow loads, Structures, Bearing strength, Roofs.

34-2410
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Masterson, D.M., et al, *American Society of Civil Engineers. Structural Division. Journal*, Jan. 1980, 106(ST1), p.133-143, 15 refs.
Kivisild, H.R.
Offshore drilling, Oil recovery, Artificial islands, Ice islands, Ice (construction material).

34-2411
Environmental studies in the central Quebec-Labrador Peninsula: Finnish contributions.
McGill Subarctic Research Station, Schefferville, Quebec, *McGill University, Montreal. Sub-arctic Research Laboratory, Schefferville, Que. McGill sub-arctic research papers*, Jan. 1980, No.30, 89p., Numerous refs. passim.
Research projects, Subarctic landscapes, Vegetation patterns, Ecology.
The paper is composed of 9 reports by exchange Finnish scientists on their investigations in the Quebec-Labrador Peninsula. Topics include: fungi; vascular plants, cloudberry bushes; insect herbivores of birch foliage; invertebrates of birch and tamarack, growth of lepidopteran larvae; ground layer invertebrates; butterflies; and sediment transport.

34-2412
Statistical structure of the fields of precipitation and snow cover in mountains. [O statisticheskoi strukture polei osadkov i snezhnogo pokrova v gorakh],
Getker, M.I., *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.70, p.40-51, In Russian. 13 refs.
Precipitation (meteorology), Snow cover structure, Snow depth, Statistical analysis, Mountains.

34-2413
Glaze-wind forces on power lines in Central Asia. [Gololedno-vetrovye nagruzki na vozdushnykh liniiakh v Srednei Azii],
Leukhina, G.N., *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.70, p.67-72, In Russian. 4 refs.
Power line icing, Power line supports, Ice accretion, Ice loads, Wind factors, Loads (forces).

34-2414
Moisture transport in the atmosphere during abundant precipitation in the Zeravshan and Kashkadarya basins in winter and spring. [O perenose vlagi v atmosfere pri obil'nykh osadkakh v basseinakh rek Zeravshan i Kashkadad'ia v zimnii i vesennii period].
Voinova, T.A., et al, *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.70, p.79-84, In Russian. 13 refs.
Il'inova, E.S.
Precipitation (meteorology), Snow accumulation, Moisture meters, Seasonal variations, Weather observations.

34-2415
Ice regime and severity of winters on the Aral Sea. [Ledovitost' i surovost' zim na Aral'skom more].
Temnikov, S.N., *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.66, p.75-81, In Russian. 11 refs.
Ice conditions, Sea ice, Air temperature, Statistical analysis, USSR—Aral Sea.

34-2416
Use of heat pipes for freezing soil, Pt. 1.
Vaaz, S.L., *Journal of engineering physics*, Nov. 1979, 36(5), p.608, Translated from Inzhenerno-fizicheskii zhurnal, 36(5), p.910-913, May 1979.
Heat pipes, Soil freezing, Artificial freezing, Permafrost control, Models.

34-2417
Biodynamics and soil productivity. [Biodinamika i plodorodie pochvy].
Simpozium Biodinamika pochv, 2nd, Tallin, 1979, Tallin, AN ESSR 979, 211p., In Russian. Refs. passim. For selected papers see 34-2418 through 34-2420.
Rakhno, P.Kh., ed.
Soil microbiology, Taiga, Tundra, Bacteria, Seasonal variations.

34-2418
Dynamics of microbial biomass in taiga soils of West Siberia. [Dinamika mikrobnoi biomassy v pochvakh taezhnogo landshafta Zapadnoi Sibiri].
Antonenko, A.M., et al, Biodinamika i plodorodie pochvy; Materialy 2 simpoziuma Biodinamika pochv (Biodynamics and soil productivity; Proceedings of the 2nd Symposium on Biodynamcis of soils). Edited by P.Kh. Rakhno, Tallin, AN ESSR, 1979, p.69-72, In Russian. 3 refs.
Nikitina, Z.I.
Soil microbiology, Taiga, Biomass.

34-2419
Population dynamics of microorgamisms in podsol in Kola Peninsula. [Dinamika chislennosti mikroorganizmov v podzolistykh pochvakh Kol'skogo poluostrova].
Pereverzev, V.N., et al, Biodinamika i plodorodie pochvy; Materialy 2 simpoziuma Biodinamika pochv (Biodynamics and soil productivity; Proceedings of the 2nd Symposium on Biodynamics of soils). Edited by P.Kh Rakhno, Tallin, AN ESSR, 1979, p.73-76, In Russian.
Logvinova, M.M.
Soil microbiology, Podsol, Seasonal variations, Bacteria.

34-2420
Dynamics of bacterial community growth in tundra soils of southern Taymyr. [Dinamika razvitiia bakterial'nykh soobshchestv v iuzhnykh tundr Taimyra].
Parinkina, O.M., Biodinamika i plodorodie pochvy; Materialy 2 simpoziuma Biodinamika pochv (Biodynamics and soil productivity; Proceedings of the 2nd Symposium on Biodynamics of soils). Edited by P.Kh Rakhno, Tallin, AN ESSR, 1979, p.100-103, In Russian. 2 refs
Tundra, Soil microbiology, Bacteria.

34-2421
Non-linear theory relating to visco-compressible materials with applications to snow mechanics.
Costes, N.C., Raleigh, University of North Carolina, 1965, 250p., University Microfilms order No.65-14,107, Ph.D. thesis. Refs. p.229-241.
Snow mechanics, Snow elasticity, Snow compression, Viscosity, Snow (construction material), Engineering, Design, Theories.

34-2422
Properties of frozen base course in West Texas.
Campbell, W.R., Jr., et al, *Texas Transportation Institute. Research report*, Mar. 1979, 207-4, 94p. PB-300 983.
Lytton, R.L.
Pavement bases, Frost heave, Freeze thaw cycles, Soil freezing.

34-2423
Seasonal oil production scheme for iceberg-infested waters, Part 2.
Duval, J., et al, *Ocean industry*, Jan. 1980, 15(1), p.19-20, 25-26.
Mercier, G., Morin, P.
Oil recovery, Offshore drilling, Bottom drilling, Icebergs, Ice scoring.

34-2424
Trials of the deicing equipment installed on YTB-771 (Keokuk).
Kenney, W.P., *U.S. Department of the Navy. David W. Taylor Naval Ship Research and Development Center, Bethesda, Maryland. Report*, Sep. 1976, 114 28 70 229, 6p. + 10 figs., For official use only
Ship icing, Ice removal.

34-2425
Cold weather concreting. Skokie, Illinois, Portland Cement Association, 1975, 9p., 10 refs.
Winter concreting, Insulation, Heating, Concrete placing, Air entrainment, Concrete strength.

34-2426
Plant cold hardiness and freezing stress: mechanisms and crop implications.
Li, P.H., ed, New York, Academic Press 1978, 416p., Proceedings of an International Seminar on Plant Cold Hardiness, St. Paul, Minnesota, Nov. 2-4, 1977. Numerous refs. passim.
Sakai, A., ed.
DLC QK756.P53
Meetings, Cold stress, Cold tolerance, Plants (botany), Plant physiology, Vegetation, Agriculture, Acclimatization, Supercooling.

34-2427
Studies of radiative cooling at land basins in snowy season.
Ishikawa, N., *Hokkaido. University. Institute of Low Temperature Science. Contributions*, 1977, Series A No.27, p.1-46, 31 refs.
DLC QC1.H65 no.27
Temperature inversions, Heat transfer, Snow air interface, Radiant cooling, Heat balance, Mountains.

34-2428
Growth of ice in a saltwater drop falling in an organic phase.
Bustany, S.T., et al, *American Institute of Chemical Engineers. AICHE journal*, May 1979, 25(3), p.439-446, 24 refs.
Harriott, P., Wiegandt, H.F.
Ice growth, Salt water, Mathematical models, Heat transfer, Mass transfer, Desalting.

34-2429
Iceberg scouring on the Labrador Shelf, Saglek Bank.
Gustajtis, K.A., *Memorial University of Newfoundland. Centre for Cold Oceans Resources Engineering. C-CORE publication*, Nov. 1979, 79-13, 89p., 57 refs.
Icebergs, Ice scoring, Seismic surveys, Ocean currents, Drift.

34-2430
Project SAR '77 summary report.
Worsfold, R.D., ed, *Memorial University of Newfoundland. Centre for Cold Oceans Resources Engineering. C-CORE publication*, Dec. 1979, 79-15, 402p., Refs. p.397-402.
Sea ice, Floating ice, Icebergs, Radar echoes, Aerial surveys, Ground truth, Oceanography, Meteorological data.

34-2431
Mass balance of the Ward Hunt Ice Rise and Ice Shelf: an 18 year record.
Serson, H.V., *Canada. Defence Research Establishment Pacific. Technical memorandum*, Nov. 1979, 79-4, 14p., In English with French summary. 18 refs.
Ice accretion, Mass balance, Ablation.

34-2432
Effect of third generation tire studs on pavement wear reduction, 1977-1979; report of test results on wear from various tire-stud combinations.
Cook, J.C., *Washington. State University. Transportation Engineering Section. Report*, June 1979, No.79/15-27, 88p., 20 refs.
Pavements, Damage, Tires.

34-2433
Environmental geology and geomorphology of the barrier island-lagoon system along the Beaufort Sea coastal plain from Prudhoe Bay to the Colville River.
Cannon, P.J., et al, *Alaska. University. Sea Grant Program. Report*, Aug. 1979, 79-6, Alaska Science Conference, 29th, Fairbanks, Aug. 15-17, 1979. Proceedings (Alaska fisheries: 200 years and 200 miles of change), edited by B.R. Melteff, p.335-345, 12 refs
Rawlinson, S.E.
Offshore landforms, Shore erosion, Tundra, Sediment transport.

34-2434
Drainage network analysis of a subarctic watershed.
Bredthauer, S., et al, *Alaska. University. Sea Grant Program. Report*, Aug. 1979, 79-6, MP 1274, Alaska Science Conference, 29th, Fairbanks, Aug. 15-17, 1979. Proceedings (Alaska fisheries: 200 years and 200 miles of change), edited by B.R. Melteff, p.349-359, 8 refs.
Hoch, D.
Watersheds, Drainage, Stream flow.
A drainage network map of the Caribou-Poker Creek Research Watershed, near Fairbanks, Alaska, has been used to conduct a Strahler stream order analysis and an analysis of length distributions of source and tributary-source links in a subarctic watershed. The basins have very low drainage densities, ranging from 1.35 km/sq km to 5.34 km/sq km. Bifurcation ratios were higher than those found in watersheds in the continental U.S. Statistical analysis indicates that source and tributary-source links in a subarctic watershed belong to different length populations, the same as found in other regions of the world. Additional analysis indicates that exterior links originating on permafrost slopes tend to be shorter than those originating on non-permafrost (well-drained) slopes.

34-2435
Frost susceptibility of some gravels used in road construction in Ireland.
Davitt, S., Dublin, 1978, 35p., 7 refs.
Gravel, Frost resistance, Frost heave, Roads, Ireland.

34-2436
Effect of permafrost on evolution of river beds and hydraulic structures built on river beds and river banks. [Vliianie vechnoi merzloty na ruslovye protsessy i gidrotekhnicheskie sooruzheniia, raspolozhennye v rusle i na beregakh rek].
Levashov, A.A., et al, *Leningrad. Politekhnicheskii institut. Mezhvuzovskii sbornik*, 1977, No.63, p.12-17, In Russian. 9 refs.
Shmidt, S.V., Strel'chenia, O.M., Kovrigin, I.M.
Permafrost beneath rivers, Permafrost beneath structures, Permafrost thermal properties, River basins, Hydraulic structures, Banks (waterways), Drift, Active layer, Floods.

34-2437
Ecological and phytocenological complexes of Asiatic Russia (Experience in mapping). [Ekologo-fitotsenoticheskie kompleksy Aziatskoi Rossii (Opyt kartografirovaniia)].
Sochava, V.B., ed, Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1977, 70p. + map, In Russian. Refs. passim. For selected article see 34-2438.
Arctic landscapes, Vegetation patterns, Plant ecology, Geobotanical interpretation, Mapping, Classifications.

34-2438
Method of compiling and brief analysis of a correlative ecological and phytocenological map of Asiatic Russia, scale of 1:7,500,000. [Metodika sostavleniia i kratkii analiz korreliatsionnoi ekologo-fitotsenoticheskoi karty Aziatskoi Rossii m. 1:7 500 000].
Buks, I.I., Ekologo-fitotsenoticheskie kompleksy Aziatskoi Rossii (Opyt kartografirovaniia) (Ecological and phytocenological complexes of Asiatic Russia (Experience in mapping)). Edited by V.B. Sochava, Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1977, p.15-54, In Russian. 30 refs.
Arctic landscapes, Mapping, Plant ecology, Vegetation patterns, Classifications.

34-2439
Proceedings.
Iceberg Dynamics Symposium, St. John's, Newfoundland, Canada, June 4-5, 1979, *Cold regions science and technology*, Feb. 1980, 1(3/4), p.167-306, For individual papers see 34-2440 through 34-2452, or F-22981, G-22982 and F-22983.
Russell, W.E., ed.
Meetings, Icebergs, Dynamic properties.
This issue is devoted to the papers presented at an international symposium dealing with theoretical and practical problems associated with iceberg drift. The symposium was sponsored by the Newfoundland Oceans Research and Development Corp., with assistance from the U.S. Coast Guard and the Department of Industrial Development, Province of Newfoundland and

Labrador. Participants included scientists and engineers who had contributed to the understanding of the physical nature of iceberg drift and to the development of concepts or systems related to both utilization of icebergs and to protection of structures from iceberg impact.

34-2440
West Greenland outlet glaciers: an inventory of the major iceberg producers.
Kollmeyer, R.C., *Cold regions science and technology*, Feb. 1980, 1(3/4), p.175-181, 4 refs.
Icebergs, Glaciers, Ice conditions, Greenland.

34-2441
Long-term drift of icebergs in Baffin Bay and the Labrador Sea.
Robe, R.Q., et al, *Cold regions science and technology*, Feb. 1980, 1(3/4), p.183-193, 8 refs.
Maier, D.C., Russell, W.E.
Icebergs, Drift, Remote sensing, Tracking (position).

34-2442
Potential of SAR in detecting and monitoring icebergs.
Parashar, S., et al, *Cold regions science and technology*, Feb. 1980, 1(3/4), p.195-210, 17 refs.
Stapleton, G., Worsfold, R.
Icebergs, Radar echoes, Radar tracking, Remote sensing.

34-2443
Ocean eddy structure by satellite radar altimetry required for iceberg towing.
Campbell, W.J., et al, *Cold regions science and technology*, Feb. 1980, 1(3/4), p.211-221, 16 refs.
Cheney, R.E., Marsh, J.G., Mognard, M.N.
Ocean currents, Spacecraft, Iceberg towing.
Recent oceanographic research indicates that most of the ocean momentum is probably involved in intense rings, formed by meanders of the large streams, and in mid-ocean eddies. These rings and eddies have typical dimensions on the order of 200 km with dynamic height anomalies across them of tens of centimeters to a meter. They migrate at speeds on the order of a few cm/sec. Current velocities as great as 3 knots have been observed in rings, and currents of 1 knot are common. Thus, the successful towing of icebergs is dependent on the ability to locate, measure, and track ocean rings and eddies. To accomplish this systematically on synoptic scales appears to be possible only by using satellite-borne radar altimeters. Ocean current and eddy structures as observed by the radar altimeters on the GEOS-3 and Seasat-1 satellites are presented and compared. The Antarctic Circumpolar Current is ideally suited for using this technique to identify, monitor and eventually map its rings and eddies on synoptic scales. (Auth. mod.)

34-2444
Environmental factors affecting iceberg scour estimates.
Chari, T.R., et al, *Cold regions science and technology*, Feb. 1980, 1(3/4), p.223-230, 15 refs.
Peters, G.R., Mathukrishnaiah, K.
Icebergs, Ground ice, Ice scoring, Models.

34-2445
High-force towing.
Mellor, M., *Cold regions science and technology*, Feb. 1980, 1(3/4), MP 1275, p.231-240, 5 refs.
Iceberg towing, Loads (forces).
Required force levels for iceberg towing at 1 knot could be at least 50 tons for protection of structures and drillships in northern waters, and around 1000 tons for iceberg exports from the Antarctic. Corresponding values of effective ("towrope") power are only 307 hp and 6140 hp, respectively. Moderately large conventional tugs typically have thrust/power (T/P) ratios of 20-25 lbf/hp with unshrouded propellers, and perhaps 30%-40% more with Kort nozzles. As tug size increases, the propeller loading usually has to increase and T/P decreases. A conventional-hull supertug capable of 1000 tons thrust would probably have T/P = 10 lbf/hp, p = 200,000 hp, and a propulsive efficiency of about 3%. Unconventional propellers, paddles, and water jets have little to offer, but efficiency could be improved with an unconventional hull that provides space for large propeller area. If an iceberg is propelled by pulling a drogue towards it, the propulsive efficiency increases as speed of the drogue decreases, but the required drogue area increases. For antarctic towing the demands exceed current capabilities for winch force, winch power and line speed. If an iceberg is towed against a bottom anchor, the propulsive efficiency is 100%, and power demands are modest. While such a system is feasible for relatively shallow waters, it would be very difficult to use in the deep oceans. For any system that has to develop very high towing forces, the tow cable itself is a problem. The safe working load of 6-in. wire rope is less than 300 tons, or 3 1/2 times less than the 1000-ton force that might be needed to move useful antarctic icebergs. The most practical expedient for antarctic towing seems to be use of multiple conventional tugs, with fewer tugs or higher speeds as the iceberg reduces its size and streamlines itself. The practical difficulty of towing antarctic icebergs may have been underestimated, and it might be worth reconsidering preliminary shaping of the iceberg to reduce the drag. (Auth.)

34-2446
On the size distribution of Antarctic icebergs.
Neshyba, S., *Cold regions science and technology*, Feb. 1980, 1(3/4), p.241-248, 14 refs.
Icebergs, Distribution, Models, Antarctica.
Composites are given of six reported antarctic iceberg size distributions, and theoretical Rayleigh distributions are fitted with reasonable small errors. A modal length of 0.4km is found for observations in East Antarctica; this increases to 0.7km when size data for icebergs observed by satellite in or near the pack ice in the Bellingshausen Sea are added. Results of model investigation of the equilibrium or standing population size distribution, based on the Gordienko observations of sizes near the Amery Ice Shelf as initial conditions and annual input together with the constraints of uniform sidewall wastage rate and that length/width ratios be maintained within the range 1.1 to 2.2 by iceberg fracturing into equal parts, show a distribution much unlike the Rayleigh in that the highest probability of occurrence is of icebergs of widths 0-0.2km. The model size distribution attains equilibrium after 21 years, at which time it is fitted very well to a Weibull distribution with parameters beta = 0.5, eta = 1.6 and gamma = 0. A method is outlined by which the size distribution of freshly-calved icebergs might be assessed for use as the initial condition to such models. (Auth.)

34-2447
Experiments involving melting of a large ice block towed in sea water.
Fuhs, A.E., et al, *Cold regions science and technology*, Feb. 1980, 1(3/4), p.249-264, 17 refs.
Ice melting, Ice deterioration, Icebergs, Experimentation, Sea water.

34-2448
Measurement of thermal conduction within a large fresh water ice block being towed in sea water.
Clifford, W., et al, *Cold regions science and technology*, Feb. 1980, 1(3/4), p.265-272, 7 refs.
Erman, R., Fuhs, A., Stolfi, R.
Thermal conductivity, Iceberg towing, Ice temperature, Heat transfer, Experimentation.

34-2449
On predicting iceberg drift.
Mountain, D.G., *Cold regions science and technology*, Feb. 1980, 1(3/4), p.273-282, 5 refs.
Icebergs, Drift, Ice forecasting, Models, Wind factors, Ocean currents.

34-2450
Iceberg drift observations in Lancaster Sound.
Riggs, N.P., et al, *Cold regions science and technology*, Feb. 1980, 1(3/4), p.283-291, 4 refs.
Thangam Babu, P.V., Sullivan, M.A., Russell, W.E.
Icebergs, Drift, Ice conditions, Ocean currents, Meteorological factors, Lancaster Sound.

34-2451
Monte Carlo simulation of iceberg impact probabilities.
Reddy, D.V., et al, *Cold regions science and technology*, Feb. 1980, 1(3/4), p.293-297, 4 refs.
Arockiasamy, M., Cheema, P.S., Riggs, N.P.
Icebergs, Computerized simulation, Mathematical models, Impact, Offshore structures.

34-2452
Dimensional modelling of icebergs.
Benedict, C.P., *Cold regions science and technology*, Feb. 1980, 1(3/4), p.299-306, 1 ref.
Icebergs, Ice models, Mathematical models.

34-2453
Western Ross Sea and McMurdo Sound ice forecasting guide.
Perchal, R.J., *U.S. Naval Oceanographic Office. Special publication*, June 1975, NOO SP-265, 132p., Refs. p.59-62.
Sea ice, Ice conditions, Ice forecasting, Pack ice, Meteorological factors, Long range forecasting, Antarctica—Ross Sea, Antarctica—McMurdo Sound.
Procedures for preparing short-range (48-hour) forecasts and long-range (15- and 30-day) estimates of austral summer sea ice conditions in the western Ross Sea and McMurdo Sound are given. Background data on environmental factors of mean storm tracks, mean monthly sea level pressure (winds) and surface air temperature over the Ross Sea and austral summer ice conditions over the western Ross Sea and McMurdo Sound are given. Analyses of historical ice edge data which are based on observations taken over sixteen years from *Deep Freeze* 1 (1955-56) through *Deep Freeze* 71 (1970-71) indicate median positions of the north and south pack edges at half-monthly intervals from October through January. Ice data also include the range of locations of pack edges, distribution of pack concentrations, percentage of large floe sizes, and ice thickness. Analyses of the thickness and median extent and extremes of fast ice in McMurdo Sound are included. Selection of optimum ice routes is described, using mean ice concentrations and the percentage of large floe sizes. (Auth. mod.)

34-2454
Three examples of unsolved problems in antarctic radiation research.
Kuhn, M., *Desert Research Institute. Laboratory of Atmospheric Physics. Technical report*, 1975, Ser. P. No.18, Report of Polar Meteorology Workshop, Reno, Nevada, 1975, p.66-67.
Snow surface, Reflectivity, Radiation absorption, Heat transfer.
The following problems identified in research relating to radiation in the Antarctic are discussed: 1) optical determination of long-term trends in the pollution (turbidity) of stratospheric air masses, 2) analysis of the reflective properties of the snow surface in terms of ray geometry, age or crystallography of the snow, and surface features, 3) the use of reflective properties of snow in near infrared wavelengths as a basis for computing the amount of atmospheric heating in the H2O and CO2 absorption bands.

34-2455
911 years of microparticle deposition at the South Pole: a climatic interpretation.
Thompson, E.M., Columbus, Ohio State University, 1979, 200p., Ph.D. thesis. Refs. p.187-200.
Ice cores, Drill core analysis, Electron microscopy, Particles, Paleoclimatology, Antarctica—South Pole.
A detailed analysis is presented of the particles in a 101-m core from Amundsen-Scott Station, which contains approximately a one thousand year record of atmospheric particle concentrations over the East Antarctic plateau. The work is organized in 8 chapers: 1) an introduction; 2) the physical and meteorological characteristics of the central Antarctic plateau, 3) the climatic history of the earth, with emphasis on the Little Ice Age, 4) the basic properties of the tropospheric and stratospheric particles, 5) a technical description of the entire microparticle analysis procedure, 6) details of the method used to construct the time scale for the 101-m core, 7) interpretation of the microparticle data, and 8) conclusions and future research. Supplementary tables and scanning electron microscope micrographs are presented in appendixes.

34-2456
Hot Arctic.
Dyson, J., Boston, Little, Brown and Co., 1979, 290p., No microfiche available.
Cold weather operation, Equipment, Oil spills, Pipelines, Water pollution, Icebreakers, Environmental impact, Survival, Animals.

34-2457
Taiga in the global ecosystem. [Taiga v global'noĭ ekosisteme Zemli].
Rasshirennoe zasedanie Nauchnogo Soveta Sibirskogo otdeleniia AN SSSR po kompleksnomu osvoeniiu taezhnykh territoriĭ, Irkutsk, May 24-25, 1977, Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1978, 112p., In Russian. Refs. passim. For selected papers see 34-2458 through 34-2470.
Mikhaĭlov, IU.P., ed.
Taiga, Landscape types, Forest ecosystems, Environmental protection, Human factors, Geobotanical interpretation.

34-2458
Taiga geosystems and problems of interaction between man and taiga. [Geosistemy taĭgi i problemy sotvorchestva cheloveka s taezhnoĭ prirodoĭ].
Sochava, V.B., Taĭga v global'noĭ ekosisteme Zemli (Taiga in the global ecosystem) edited by IU.P. Mikhaĭlov, Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1978, p.5-13, In Russian.
Taiga, Forest ecosystems, Geobotanical interpretation, Landscape types, Biomass, Moisture, Solar radiation, Human factors, Models.

34-2459
Taiga and its place in the global ecosystem. [Taĭga i ee mesto v global'noĭ ekosisteme].
Krauklis, A.A., et al, Taĭga v global'noĭ ekosisteme Zemli (Taiga in the global ecosystem) edited by IU.P. Mikhaĭlov, Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1978, p.14-26, In Russian. 19 refs.
Mikhaĭlov, IU.P.
Taiga, Forest ecosystems, Geobotanical interpretation, Human factors, Water reserves.

34-2460
Experiment in landscape studies for optimizing taiga landscapes of the European USSR. [Opyt landshaftnykh issledovaniĭ v tseliakh optimizatsii taezhnykh landshaftov evropeĭskoĭ chasti SSSR].
Isachenko, A.G., Taĭga v global'noĭ ekosisteme Zemli (Taiga in the global ecosystem) edited by IU.P. Mikhaĭlov, Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1978, p.26-34, In Russian. 6 refs.
Taiga, Landscape types, Geobotanical interpretation, Environmental protection.

34-2461
Remote sensing of taiga geosystems in different spectral ranges. [Distantsionnaia indikatsiia taezhnykh geosistem v raznykh spektral'nykh intervalakh].
Vinogradov, B.V., Taĭga v global'noĭ ekosisteme Zemli (Taiga in the global ecosystem) edited by IU.P. Mikhaĭlov, Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1978, p.34-42, In Russian. 14 refs.
Taiga, Landscape types, Remote sensing, Geobotanical interpretation, Forest ecosystems, Aerial surveys, Spectra.

34-2462
Forest resource analysis as a bioeconomical approach to studying the natural potential of taiga. ⌐Lesnoe resursovedenie kak bioekonomicheskiĭ podkhod k izucheniiu prirodnogo potentsiala taĭgi⌐.
Shelngauz, A.S., Taiga v global'noĭ ekosisteme Zemli (Taiga in the global ecosystem) edited by IU.P. Mikhaĭlov, Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1978, p.42-53, In Russian. 24 refs.
Taiga, Forest ecosystems, Geobotanical interpretation, Forestry, Wood.

34-2463
Spruce forests as a stabilizing component of taiga biome in the European North. ⌐El'niki kak stabiliziruiushchiĭ komponent taezhnogo bioma na Evropeĭskom Severe⌐.
Dyrenkov, S.A., Taiga v global'noĭ ekosisteme Zemli (Taiga in the global ecosystem) edited by IU.P. Mikhaĭlov, Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1978, p.53-58, In Russian. 8 refs.
Taiga, Forest ecosystems, Growth, Human factors, Wood, Forestry.

34-2464
Structural potential and improvement in the use of pine forests of various ages in Siberia. ⌐Strukturnyĭ potentsial i voprosy ratsionalizatsii lesopol'zovaniia v raznovozrastnykh sosnovykh lesakh Sibiri⌐.
Verkhunov, P.M., Taiga v global'noĭ ekosisteme Zemli (Taiga in the global ecosystem) edited by IU.P. Mikhaĭlov, Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1978, p.58-63, In Russian.
Taiga, Forestry, Forest ecosystems, Wood.

34-2465
Taiga larch forests in Sikhote-Alin and their management. ⌐Taezhnye listvennichnye lesa Sikhote-Alinia i khoziaĭstvo v nikh⌐.
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Wave propagation, Snow deformation, Shock waves, Loads (forces), Analysis (mathematics).
An analytical study of the propagation of shock waves in snow was carried out to evaluate the response of medium density snow to high rates of loading. One solution was developed for steady shock waves, this resulted in calculation of pressure jump, density jump and stress wave speed. Correlation with available experimental data was found to be good. Nonsteady shock waves were also considered in order to evaluate wave attenuation rates in snow. Very few data were available to compare with the analytical results, so no definite conclusions on the part of the study could be made. The results show, however, that shock waves that produce plastic deformation attenuate at extremely high rates and that differences in pressure between two waves are quickly eliminated within a short distance. Calculations were also made to evaluate the effect of wave frequency on attenuation rates. The results show that, for plastic waves, frequency is not a predominant factor for determining attenuation rates. (Auth.)

34-2529
Regularities governing natural phenomena and their forecasting. [Zakonomernosti i prognozirovanie prirodnykh iavlenii].
Agarkov, S.I., ed, Moscow, Nauka, 1980, 271p. (Pertinent p.87-162), In Russian with abridged English table of contents enclosed. Refs. p.256-269.
Druzhinin, I.P., ed, Reznikova, A.V., ed.
Mountains, River basins, Valleys, Slope processes, Mudflows, Permafrost distribution, Permafrost hydrology, Naleds, Taliks, Earthquakes, Forecasting.

34-2530
Hydrothermal melioration of frozen rocks in the Northeastern USSR. [Vodno-teplovaia melioratsiia merzlykh porod na Severo-Vostoke SSSR].
Perl'shtein, G.Z., Novosibirsk, Nauka, 1979, 304p., In Russian with English table of contents enclosed. Refs. p.276-290.
Frozen rocks, Artificial melting, Active layer, Soil freezing, Frost protection, Frozen fines, Permafrost hydrology, Permafrost control, Placer mining.

34-2531
Collected changes and supplements to the 1st, 2nd and 3rd parts of Construction Norms and Regulations (SNiP) and Instructions (SN) introduced in 1978. [Sbornik izmenenii i dopolnenii k I, II i III chastiam stroitel'nykh norm i pravil (SNiP) i instruktsiiam (SN) vnesennykh v 1978 g.].
Russia. Gosudarstvennyi komitet po delam stroitel'stva, Moscow, Stroiizdat, 1979, 64p., In Russian with English table of contents enclosed.
Zelentsova, M.I., ed.
Building codes, Standards.

34-2532
Pressing environmental protection problems in the Far East. [Aktual'nye voprosy okhrany prirody na Dal'nem Vostoke].
Konovalenko, V.G., ed, Vladivostok, 1978, 179p., In Russian. For selected papers see 34-2533 through 34-2537. Refs. passim.
Smirnova, O.A., ed.
Environmental protection, Permafrost beneath structures, Maps, Soil freezing, Taiga, Soil erosion, Water erosion, Landscape types, Gullies, Human factors, Baykal Amur railroad, USSR—Far East.

34-2533
Some aspects of environmental protection in the Far Eastern USSR. [Nekotorye aspekty okhrany prirody Dal'nego Vostoka SSSR].
Konovalenko, V.G., Aktual'nye voprosy okhrany prirody na Dal'nem Vostoke (Pressing environmental protection problems in the Far East) edited by V.G. Konovalenko and O.A. Smirnova, Vladivostok, 1978, p.3-6, In Russian.
Environmental protection, Landscape types, Taiga, Human factors, Baykal Amur railroad, USSR—Far East.

34-2534
Protection and use of biologic resources in the Baykal Amur railroad construction zone. [Ob okhrane i ispol'zovanii biologicheskikh resursov v zone stroitel'stva Baikalo-Amurskoi magistrali].
Man'ko, IU.I., Aktual'nye voprosy okhrany prirody na Dal'nem Vostoke (Pressing environmental protection problems in the Far East) edited by V.G. Konovalenko and O.A. Smirnova, Vladivostok, 1978, p.7-9, In Russian. 2 refs.
Construction, Taiga, Forestry, Human factors, Permafrost beneath structures, Environmental protection, Baykal Amur railroad.

34-2535
Seasonal freezing of soil and ground in the southeastern Amur area. [Sezonnoe promerzanie pochvogruntov iugo-vostochnoi chasti Amurskoi oblasti].
Baulo, V.D., et al, Aktual'nye voprosy okhrany prirody na Dal'nem Vostoke (Pressing environmental protection problems in the Far East) edited by V.G. Konovalenko and O.A. Smirnova, Vladivostok, 1978, p.100-107, In Russian. 5 refs.
Vtiurina, E.A.
Soil freezing, Frost penetration, Seasonal freeze thaw, Snow cover effect, Meteorological factors, USSR—Amur River.

34-2536
Intensity of gully formation in the intermontane troughs of southern Srednee Priamur'e. [Intensivnost' ovragoobrazovaniia v mezhgornykh vpadinakh iuga srednego Priamur'ia].
Miskina, L.V., Aktual'nye voprosy okhrany prirody na Dal'nem Vostoke (Pressing environmental protection problems in the Far East) edited by V.G. Konovalenko and O.A. Smirnova, Vladivostok, 1978, p.123-132, In Russian. 5 refs.
Mountain soils, Slope protection, Water erosion, Gullies, Countermeasures, Vegetation factors.

34-2537
Mapping the use of restockable natural resources for geographic forecasting. [Kartografirovanie ispol'zovaniia vozobnovimykh prirodnykh resursov pri geograficheskom prognozirovanii].
Vorob'eva, T.A., et al, Aktual'nye voprosy okhrany prirody na Dal'nem Vostoke (Pressing environmental protection problems in the Far East) edited by V.G. Konovalenko and O.A. Smirnova, Vladivostok, 1978, p.132-139, In Russian. 11 refs.
Mikhailovskaia, N.N., Neviazhskii, I.I., Rozhdestvenskaia, N.A.
Forestry, Human factors, Air pollution, Water pollution, Mapping, Environmental protection, Thematic maps.

34-2538
Recrystallisation and electrical behaviour of glacier ice.
Reynolds, J.M., et al, *Nature*, Jan. 3, 1980, 283(5742), p.63-64, 26 refs.
Paren, J.G.
Glacier ice, Ice shelves, Electrical resistivity, Ice electrical properties, Recrystallization, Impurities, Antarctica—George VI Ice Shelf.
Electrical d.c. resistivity measurements made on George VI Ice Shelf have established the polar nature of antarctic ice despite saturation by melt-water from surface melt-lakes. Previously it has been suggested that different impurity concentrations are responsible for the extremes in resistivity (a factor of 1,000) between temperate ice (essentially at its pressure melting point) and polar ice (well below its pressure melting point). However the evidence suggests that impurity levels are similar despite the leaching of contaminants by free water in temperate glaciers, a process which is absent in true polar glaciers. This implies that, although impurities can significantly alter the electrical behavior of glacier ice, there is a more fundamental mechanism at work. It is suggested that this process is one of recrystallization. (Auth.)

34-2539
Contributions from the Shinjo Branch, No.1 (1969-1979).
Japan. National Research Center for Disaster Prevention, 1979, Var.p., In Japanese some with English summaries. For selected articles see: 33-552, 33-3690, 33-2815, 33-378, 33-550, 33-551, 33-4595, 33-4277, 33-547, 33-548, 33-2659, 33-3691 and 34-2539 through 34-2557.
Snowmelt, Meltwater, Snow cover structure, Ground water, Artificial snow, Japan—Shinjo.

34-2540
New apparatus to produce fresh snow.
Nakamura, H., *Japan. National Research Center for Disaster Prevention. Report*, 1978, No.19, p.229-237, In Japanese with English summary. 1 ref., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).
Snow manufacturing, Artificial snow, Snow crystal growth, Hoarfrost, Equipment.

34-2541
Internal friction of snow and ice low frequency.
Nakamura, T., et al, International Conference on Internal Friction and Ultrasonic Attenuation in Solids, 6th, Tokyo, 1977. Proceedings, [Tokyo, 1977], p.285-289, 8 refs., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).
Internal friction, Ice friction, Snow physics, Snow density, Ice density, Plastic deformation.

34-2542
Mechanical properties of impure ice single crystals at high temperatures.
Nakamura, T., *Japan. National Research Center for Disaster Prevention. Report*, 1978, No.20, p.293-324, In Japanese with English summary. 25 refs. For a short version see 33-376., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).
Ice crystal structure, Ice mechanics, Doped ice, Stress strain diagrams, Strain tests, Tensile properties, Ice deformation, Temperature effects, Loads (forces).

34-2543
Comparison on the non-slip quality among three different types on langlauf ski-plates.
Nakamura, T., Preliminary report for the 11th Interski Congress at Zao, Japan, 1979, p.1-6, In Japanese with English captions. 1 ref., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).
Wood snow friction, Snow strength, Bearing strength.

34-2544
Research of ground water resources to melt snow, No.1.
Yuhara, K., et al, Report of scientific study of the Ministry of Education, Japan. Study for the development of ground water resources, [Tokyo, 1972], p.7-10, In Japanese., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).
Higashiura, M.
Water reserves, Snowmelt, Ground water.

34-2545
Research of ground water resources to melt snow, No.2.
Higashiura, M., Report of scientific study of the Ministry of Education, Japan. Study for the development of ground water resources, [Tokyo, 1972], p.16-23, In Japanese., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).
Water reserves, Snowmelt, Ground water.

34-2546
Water balance in the Shinjo basin.
Higashiura, M., *Geographical review of Japan*, 1975, 48(7), p.490-496, In Japanese with English summary. 6 refs., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).
Water balance, Snowmelt, Runoff, Snow accumulation, Climatic factors.

34-2547
Climatological water balance in the Shinjo basin.
Higashiura, M., *Japan. National Research Center for Disaster Prevention. Report*, 1976, No.14, p.95-109, In Japanese with English summary. 7 refs., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).
Water balance, Snowmelt, Runoff, Meltwater, Snowfall, Evaporation, Precipitation (meteorology), Climatic factors.

34-2548
Ground water in the Shinjo basin.
Higashiura, M., Nihon no mizushushi (Water balance in Japan). Edited by M. Ichikawa and I. Kayane, Tokyo, Kokon-shoin, 1978, p.165-174, In Japanese. 11 refs., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).
Ground water, Meltwater, Water balance.

34-2549
Experimental study on the most reasonable amount of ground water to be sprinkled for melting the freshly fallen snow on the roads.
Nakamura, H., *Japan. National Research Center for Disaster Prevention. Report*, 1977, No.18, p.117-147, In Japanese with English summary. 8 refs., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).
Snow removal, Artificial melting, Snow melting, Roads, Ground water, Water temperature, Meteorological factors.

34-2550
Snow melting by sprinkling ground water.
Higashiura, M., *Water temperature research*, 1972, 16(4), p.2834-2841, In Japanese. 10 refs., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).
Snow removal, Artificial melting, Snow melting, Ground water, Water temperature.

34-2551
Snow melting on roofs by sprinkling ground water.
Higashiura, M., *Japan. National Research Center for Disaster Prevention. Report*, 1977, No.17, p.215-225, In English with Japanese summary. 10 refs., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).
Snow melting, Snow removal, Artificial melting, Roofs, Ground water.

34-2552
Basic study of snow melting on roofs.
Higashiura, M., Report of scientific study of the Ministry of Education, Japan. Basic study for snow disaster prevention, Fukushima University, 1976, p.17-19, In Japanese., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).
Snow melting, Artificial melting, Roofs, Snow removal.

34-2553
On the present situation of snow removal and melting from greenhouses.
Higashiura, M., Shisetsu Engei Yoran, Tokyo, 1975, p.131-140, In Japanese., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).
Snow removal, Snow melting, Artificial melting, Roofs.

34-2554
Profile observations of snow cover on level land in Shinjo City during the winter of 1973-1974.
Higashiura, M., et al, *Japan. National Research Center for Disaster Prevention. Research notes*, 1975, No.13, p.37-54, In Japanese. 4 refs., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).
Abe, O.
Snow cover structure, Profiles, Temperature effects, Japan—Shinjo.

34-2555
Observation on vertical profiles of physical properties of snow cover on the ground surface at Shinjo City during the winter of 1974 to 1975.
Higashiura, M., et al, *Review of Research for Disaster Prevention*, 1978, No.33, p.1-26, In Japanese with English summary. [illegible] refs., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).
Abe, O., Nakamura, T., Nakamura, H.
Snow cover structure, Profiles, Snow physics, Japan—Shinjo City.

34-2556
Destructive avalanches in Japan (No.1)—of Yamagata-ken (1929-1975), Niigata-ken (1945-1974) and a whole country (1927-1976).
Japan. National Research Center for Disaster Prevention, *Review of Research for Disaster Prevention*, 1977, No.27, p.1-92, In Japanese with English summary. 5 refs., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).
Avalanche formation, Avalanche erosion, Snow depth, Damage, Statistical analysis.

34-2557
Observational data of ground water in the Shinjo basin (1)—Shallow ground water level and water temperature (1970-1975).
Higashiura, M., et al, *Review of Research for Disaster Prevention*, 1979, No.37, p.1-95, In Japanese with English summary. 4 refs., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).
Abe, O.
Snow melting, Meltwater, Ground water, Water temperature, Water level, Seasonal variations, Statistical analysis.

34-2558
Frost action problem—an overview of research to provide solutions.
DiMillio, A.F., et al, *Public roads*, Mar. 1980, 43(4), p.149-158, 6 refs.
Fohs, D.G.
Research projects, Frost action, Thermal insulation, Roads, Frost resistance.

34-2559
Winters of the world: Earth under ice ages.
John, B.S., ed, New York, Wiley and Sons, 1979, 256p., Bibliography p.250-253. For pertinent paper see 34-2560 or E-23078
Glacial geology, Ice age theory, Geomorphology, Climatic changes, Glaciation.
The book deals with the global importance of ice and basic geological processes; causes of ice ages; effects of large-scale glaciation on environment; and environments during specific historical ice ages from Precambrian through Quaternary. It is intended to give insight toward understanding the processes and effects of the present ice age in order to interpret correctly earlier ice ages and to predict global climates over the few centuries. Antarctica is mentioned sporadically in the text and more frequently in photographs, charts, tables, and graphs.

34-2560
Glaciers and environment.
Derbyshire, E., Winters of the world: Earth under ice ages, edited by B.S. John, New York, Wiley and Sons, 1979, p.58-106.
Glacial geology, Glacier ice, Glacial deposits, Sea ice, Icebergs.
The author describes how glaciers form, shape, and change the environments in which they operate, both at and beneath the surface, including the plant and animal life of the habitats. Rock break-up due to glacier pressure, quiet and turbulent subglacial streams, glacial deposits and unique surface features, ground ice, sea ice, and sea level changes, all as they affect and are affected by glacial and interglacial periods, are described.

34-2561
SA ice ship tribute to designers, builders. *South African shipping news and fishing industry review*, May 1978, 33(5), p.10-17.
Ships, Ice navigation, Logistics.
The South African vessel, the *S.A. Agulhas*, an antarctic survey/supply ship of British design and Japanese construction, is described. Some construction details are given and various capabilities, facilities, and equipment are noted: ice navigation, cargo handling and stowing, helicopters, scientific activities, crew and passenger accommodation, and power plants.

34-2562
Winter exploration and drilling.
Sigurdson, T., comp., *Oilweek*, Mar.10, 1980, 31(5), p.12-50.
Oil recovery, Cold weather operation, Offshore drilling, Artificial islands, Economic development, Canada.

34-2563
Submarine fluting and end moraine features in the fresh water reservoir Uusikaupunki, on the SW coast of Finland. [Vedenalaisia vakouma- ja reunamuodostumapiirteitä Uudenkaupungin makeavesialtaassa Suomen lounaisrannikolla].
Ström, O., *Terra*, 1979, 91(4), p.231-234, In Finnish with English summary. 16 refs.
Moraines, Marine geology.

34-2564
Parameterization of sub-grid scale processes.
WMO-ICSU Joint Organizing Committee, *Global Atmospheric Research Programme. GARP publications series*, Oct. 1972, No.8, 120p. (Pertinent p.97-101), In English with French, Russian, and Spanish summaries. 7 refs.
Snow cover, Sea ice, Analysis (mathematics).

34-2565
Sea ice and ice sheets and their role in climatic variations.
Untersteiner, N., *Global Atmospheric Research Programme. GARP publications series*, Apr. 1975, No.16, p.206-224, 68 refs.
Sea ice, Ice sheets, Climatic changes.
The most important variations of the atmosphere-cryosphere-hydrosphere system on time scales up to 10,000 years are the annual cycle and the prolonged glaciations associated with secular trends of the sea ice and snow cover. Theories of sea ice dynamics are still in an early stage, and concerted efforts will be needed to improve both theory and the world-wide observational monitoring of sea ice by satellite-borne, all-weather, remote sensing methods. The continental ice sheets are important features influencing the present-day general circulation of the atmosphere and the oceans (e.g. formation of bottom water around Antarctica). In terms of climatic variations they are comparatively "inert", but they provide useful paleo-climatic information. Major outbreaks (surges) of antarctic ice would have profound consequences for world climate. The search for geomorphic evidence of such events, and efforts to improve the theory of ice sheet dynamics, should be continued. (Auth.)

34-2566
Ways of improving the construction of power supply objects for the Baykal Amur railroad. [Nekotorye puti sovershenstvovaniia stroitel'stva ob"ektov elektrosnabzheniia BAMa].
Naranov, V.G., et al, *Energeticheskoe stroitel'stvo*, Feb. 1980, No.2, p.43-45, In Russian.
Govskii, M.P.
Electric power, Buildings, Power lines, Earthwork, Foundations, Permafrost beneath structures, Baykal Amur railroad.

34-2567
Design and construction of power supply lines for the Baykal Amur railroad area. [Proektirovanie i stroitel'stvo linii elektroperedachi dlia elektrosnabzheniia BAMa].
Shimkovich, V.G., *Energeticheskoe stroitel'stvo*, Feb. 1980, No.2, p.45-58, In Russian.
Electric power, Power line supports, Foundations, Permafrost beneath structures, Baykal Amur railroad.

34-2568
Design and construction of electric substations in the western section of the Baykal Amur railroad. [Nekotorye osobennosti proektirovaniia i stroitel'stva podstantsii na zapadnom uchastke BAMa].
Gromov, V.V., et al, *Energeticheskoe stroitel'stvo*, Feb. 1980, No.2, p.49-51, In Russian.
Dorofeev, V.T.
Electric power, Concrete structures, Buildings, Permafrost beneath structures, Baykal Amur railroad.

34-2569
Design and construction of substations and maintenance depots for the central Baykal Amur railroad area. [Proektirovanie i stroitel'stvo podstantsii i RPB v tsentral'nykh raionakh BAMa].
Filatov, A.M., *Energeticheskoe stroitel'stvo*, Feb. 1980, No.2, p.51-53, In Russian. 3 refs.
Electric power, Foundations, Permafrost beneath structures, Frost heave, Baykal Amur railroad.

34-2570
Tynda-Prizeiskaya 220 kw overhead line crossing the Zeya reservoir. [Perekhod VL 220 kV Tynda-Prizeiskaia cherez vodokhranilishche Zeiskoi GES].
Kirillova, G.G., et al, *Energeticheskoe stroitel'stvo*, Feb. 1980, No.2, p.53-55, In Russian.
Volkov, A.N.
Power lines, River crossings, Supports, Foundations, Permafrost beneath structures.

34-2571
Influence of preparation, storage and filling conditions on physico-mechanical properties of ground. [Vliianie uslovii zagotovki, khraneniia i ukladki gruntov na ikh fiziko-mekhanicheskie kharakteristiki].
Loseva, S.G., et al, *Energeticheskoe stroitel'stvo*, Feb. 1980, No.2, p.60-62, In Russian.
Kadkina, E.I.
Earth dams, Earth fills, Cold weather construction.

34-2572
Preparing the earth for filling the watertight parts of dams in the Far North. [Podgotovka gruntov k ukladke v protivofil'tratsionnye ustroistva plotin na Krainem Severe].
Rasskazov, L.N., et al, *Energeticheskoe stroitel'stvo*, Feb. 1980, No.2, p.62-65, In Russian. 5 refs.
Pravdivets, IU.P., Myznikov, IU.N.
Hydraulic structures, Earth dams, Earth fills, Permafrost beneath structures, Cold weather construction.

34-2573
Improving the organization of construction of overhead lines and substations in the North. [Sovershenstvovanie organizatsii stroitel'nogo proizvodstva pri sooruzhenii VL i podstantsii v severnoi zone].
Denisov, G.A., et al, *Energeticheskoe stroitel'stvo*, Jan. 1980, No.1, p.31-38, In Russian. 4 refs.
Elenbogen, G.N.
Power lines, Foundations, Construction materials, Transportation, Permafrost beneath structures.

34-2574
Modern design of power line support foundations for Tyumen'. [Vnedrenie progressivnykh konstruktsii fundamentov VL v Tiumenskoi oblasti].
Kirtbaia, I.A., et al, *Energeticheskoe stroitel'stvo*, Jan. 1980, No.1, p.38-44, In Russian. 2 refs.
Power line supports, Foundations, Permafrost beneath structures, Thermopiles, Permafrost control.

34-2575
Optimal structural design solutions for overhead lines in the North. [Vybor optimal'nykh konstruktivnykh reshenii VL dlia raionov Krainego Severa].
Gabliia, IU.A., et al, *Energeticheskoe stroitel'stvo*, Jan. 1980, No.1, p.44-48, In Russian.
Kurnosov, A.I., Shvetsova, N.I.
Power line supports, Steel structures, Foundations, Permafrost beneath structures.

34-2576
Structural design of steel power line supports for northern regions. [Ratsional'nye konstruktsii stal'nykh opor VL dlia severnykh raionov strany].
Astafeev, A.M., et al, *Energeticheskoe stroitel'stvo*, Jan. 1980, No.1, p.49-52, In Russian.
Novgorodtsev, B.P.
Steel structures, Power line supports, Foundations, Permafrost beneath structures.

34-2577
Construction of 220 kw substations under northern conditions. [Sooruzhenie podstantsii 220 kV v severnykh usloviiakh].
Kolbin, S.A., et al, *Energeticheskoe stroitel'stvo*, Jan. 1980, No.1, p.52-54, In Russian.
Parkhomenko, A.M.
Electric power, Permafrost beneath structures.

34-2578
Significance of the Kislogubsk tidal power plant for hydraulic construction and power engineering. [Znachenie Kislogubskoi PES dlia gidrotekhnicheskogo i energeticheskogo stroitel'stva].
Bernshtein, L.B., et al, *Energeticheskoe stroitel'stvo*, Jan. 1980, No.1, p.64-67, In Russian. 10 refs.
Usachev, I.N.
Dams, Hydraulic structures, Concrete structures, Frost resistance, Tidal power plants.

34-2579
Building new types of concrete dams under northern conditions. [Vozvedenie novykh tipov betonnykh plotin v severnykh usloviiakh].
Kudoiarov, L.I., *Energeticheskoe stroitel'stvo*, Jan. 1980, No.1, p.67-69, In Russian. 2 refs.
Hydraulic structures, Dams, Concrete structures, Frost resistance, Cold weather construction, Permafrost beneath structures.

34-2580
Imaging radar observations of frozen Arctic lakes.
Elachi, C., et al, *Remote sensing of environment*, 1976, 5(3), MP 1284, p.169-175, 14 refs.
Bryan, M.L., Weeks, W.F.
Radar echoes, Frozen lakes, Backscattering, Remote sensing, Bubbles, Ice water interface, Ice solid interface.
L-band radar images of a number of ice-covered lakes located approx 48 km northwest of Bethel, Alaska, show large differences in radar backscatter with lakes showing homogeneous low-returns, homogeneous high-returns and of low-returns around the lake borders and high-returns from the central areas. The patterns of the returns suggest that a low-return indicates that the lake is frozen completely to its bottom, while a high return indicates the presence of fresh-water between the ice cover and the lake bed. This interpretation is in good agreement with the limited information available on lake depths in the study area and recent X-band radar observations of North Slope lakes by Sellman, Weeks and Campbell, who suggested such an interpretation. These effects are, however, more striking in the L-band than in the X-band imagery. This can be explained by the fact that volume inhomogeneities, such as air bubbles, will cause more scattering and conductivity losses and thus more attenuation at the shorter wavelengths (X-band). (Auth.)

34-2581
Boreal ecology.
Pruitt, W.O., Jr., Institute of Biology's Studies in Biology, No.91, London, Edward Arnold, 1978, 73p., Refs. p.68-73.
Ecology, Tundra, Taiga, Permafrost, Vegetation patterns, Ecosystems, Polar regions, Animals, Climate.

34-2582
Construction equipment for the Baykal Amur railroad. [Mekhanizatsiia stroitel'nykh rabot na Baikalo-Amurskoi magistrali].
Polyakov, V.I., et al, *Mekhanizatsiia stroitel'stva*, Dec. 1979, No.12, p.2-4, In Russian.
Kolesnichenko, V.V., Berkut, I.A.
Construction equipment, Earthwork, Baykal Amur railroad, Frozen ground.

34-2583
New machines for the construction and maintenance of highways. [Novye mashiny dlia stroitel'stva i ekspluatatsii avtodorog].
Volkova, A.E., *Mekhanizatsiia stroitel'stva*, Dec. 1979, No.12, p.18-21, In Russian.
Roads, Winter maintenance, Snow removal, Earthwork, Frozen ground.

34-2584
New equipment at the construction sites of the Ministry of Construction Planning of Industrial Establishments, USSR. [Novye mashiny na stroikakh Minpromstroia SSSR].
Konstantinov, N.F., *Mekhanizatsiia stroitel'stva*, Jan. 1980, No.1, p.17-21, In Russian.
Construction equipment, Earthwork, Cold weather construction.

34-2585
Assembly for unloading frozen construction materials, PR-188. [Kompleks mashin dlia vygruzki smerzshikhsia stroitel'nykh materialov PR-188].
Volkova, A.E., *Mekhanizatsiia stroitel'stva*, Jan. 1980, No.1, p.30, In Russian.
Frozen cargo, Unloading, Construction materials, Transportation.

34-2586
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Marine geology, Arctic Ocean.

34-2651
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Hikita, S., *Railway Technical Research Institute, Tokyo. Quarterly reports*, June 1974, 15(2), p.76-78.
Snow removal, Railroad tracks, Snow melting, Artificial melting, Channels (waterways), Air temperature, Water temperature, Tests.

34-2652
Development of equipment for preventing the adhesion of ice or snow to contact wire.
Mizuno, J., et al, *Railway Technical Research Institute, Tokyo. Quarterly reports*, June 1974, 15(2), p.81-82.
Ariizumi, S., Toda, H.
Power line icing, Ice prevention, Electric heating, Artificial melting, Railroads, Equipment.

34-2653
Study on flying snow with the prototype high speed snow plough for railway.
Shinojima, K., *Railway Technical Research Institute, Tokyo. Quarterly reports*, June 1975, 16(2), p.64-69.
Railroads, Snow removal, Snow physics, Tests, Pressure, Velocity.

34-2654
Application of fluidic devices to a sprinkling nozzle with the aim of melting snow on the track.
Takeuchi, Y., et al, *Railway Technical Research Institute, Tokyo. Quarterly reports*, Mar. 1976, 17(1), p.41-42.
Ohyama, T., Hayashi, M., Endo, H.
Snow melting, Artificial melting, Railroad tracks, Water pressure, Water temperature, Hydraulics, Tests.

34-2655
Statistical amount of snow on the regions planned for the construction of Shinkansen.
Shinojima, K., et al, *Railway Technical Research Institute, Tokyo. Quarterly reports*, Sep. 1976, 17(3), p.136-127.
Imai, T., Sakazaki, K.
Snowfall, Snow depth, Railroads, Construction, Snow accumulation, Countermeasures, Statistical analysis.

34-2656
Study on occurring condition of metallic inclusions in anti-snow type composition brake shoes which cause the hollowing wear at wheel treads.
Idemura, K., et al, *Railway Technical Research Institute, Tokyo. Quarterly reports*, Mar. 1977, 18(1), p.45.
Yamashita, T.
Brakes (motion arresters), Railroads, Snow accumulation, Ice formation, Countermeasures, Metal ice friction, Tests, Railroad cars.

34-2657
Test of icicle prevention in very cold zone.
Okada, K., *Railway Technical Research Institute, Tokyo. Quarterly reports*, Sep. 1977, 18(3), p.135.
Ice prevention, Thermal insulation, Railroad tunnels, Geothermy, Tests.

34-2658
Development of fillings for slab track in cold region and its various properties.
Fukunaga, M., *Railway Technical Research Institute, Tokyo. Quarterly reports*, Sep. 1977, 18(3), p.138.
Bitumens, Cements, Mortars, Freeze thaw cycles, Railroad tracks, Compressive properties, Strength, Tests.

34-2659
Study on prevention of stone ejection from ballasted track in snowing.
Sato, Y., et al, *Railway Technical Research Institute, Tokyo. Quarterly reports*, Dec. 1977, 18(4), p.178.
Snow removal, Water flow, Railroad tracks, Rocks, Snow accumulation, Countermeasures.

34-2660
Development of a snow loader with longitudinal troughs.
Ishibashi, T., et al, *Railway Technical Research Institute, Tokyo. Quarterly reports*, Sep. 1971, 12(3), p.141-143.
Takahashi, O.
Snow removal, Railroad cars, Railroads.

34-2661
Prototype test of rail on off type snow removing car.
Tezuka, K., et al, *Railway Technical Research Institute, Tokyo. Quarterly reports*, Sep. 1971, 12(3), p.180.
Snow removal, Ice removal, Railroad tracks, Railroad cars.

34-2662
Removal of pressed and frozen snow at the flange way of the track.
Ohyama, T., et al, *Railway Technical Research Institute, Tokyo. Quarterly reports*, June 1973, 14(2), p.104-105.
Takeuchi, Y., Sekiguchi, H.
Ice removal, Snow removal, Railroad tracks, Tests, Equipment.

34-2663
Icicle formation in tunnels under train running.
Shinojima, K., *Railway Technical Research Institute, Tokyo. Quarterly reports*, Sep. 1973, 14(3), p.121-122.
Ice formation, Railroad tunnels, Temperature effects, Wind velocity, Leakage, Air temperature.

34-2664
Development of feeding systems for preventing the adhesion of ice or snow to contact wire.
Saijo, T., *Railway Technical Research Institute, Tokyo. Quarterly reports*, Sep. 1973, 14(3), p.155-156.
Ice prevention, Snow removal, Power line icing, Electric heating, Railroads, Ice adhesion.

34-2665
Durability of concrete.
Steiger, R.W., et al, *Concrete construction*, Jan. 1980, 25(1), p.35-39.
Hurd, M.K.
Concrete durability, Concrete freezing, Freeze thaw cycles, Bubbles, Low temperature tests.

34-2666
Englacial temperature and deformation of a rock glacier in the Kluane Range, Yukon Territory, Canada.
Johnson, J.P., Jr., et al, *Canadian journal of earth sciences*, Dec. 1979, 16(12), p.2275-2283, In English with French summary. 10 refs.
Nickling, W.G.
Rock glaciers, Glacier flow, Ice temperature, Subsurface investigations, Boreholes, Thermokarst development.

34-2667
Shallow core snow chemistry of Athabsca Glacier, Alberta.
Butler, D., et al, *Canadian journal of earth sciences*, Feb. 1980, 17(2), p.278-281, In English with French summary. 15 refs.
Lyons, W.B., Hassinger, J., Mayewski, P.A.
Ice composition, Snow composition, Chemical analysis, Glacier mass balance, Drill core analysis, Aerosols, Snow accumulation.

34-2668
Snow cover of the Kirgiz Highlands. [Snezhnyĭ pokrov vysokogornoĭ zony Kirgizii],
Dikikh, A.N., Frunze, Ilim, 1978, 101p., In Russian with English table of contents enclosed. 70 refs.
Snow cover distribution, Snow density, Snow depth, Snow accumulation, Snow water equivalent, Snow evaporation, Glacier surfaces, Snow deterioration, Metamorphism (snow), USSR—Tien Shan.

34-2669
Captive of perpetual cold. [Plennitsa vechnogo kholoda],
Vel'mina, N.A., Moscow, Mysl', 1979, 207p., In Russian with abridged English table of contents enclosed.
Permafrost distribution, Permafrost structure, Permafrost hydrology, Periglacial processes, Taiga, Landscape types, Surveys, Expeditions, Baykal Amur railroad.

34-2670
Mechanics of frozen ground disintegration. [Mekhanika razrusheniia merzlykh gruntov],
Surikov, V.V., Leningrad, Stroĭizdat, 1979, 127p., In Russian with English table of contents enclosed. 128 refs.
Soil freezing, Frost penetration, Frozen ground mechanics, Unfrozen water content, Frozen ground strength, Frozen ground thermodynamics.

34-2671
Crystal alignments in the fast ice of Arctic Alaska.
Weeks, W.F., et al, *Journal of geophysical research*, Feb. 20, 1980, 85(C2), MP 1277, p.1137-1146, For this paper in another form see 34-1379 (CR 79-22, ADA-077 188). 8 refs.
Gow, A.J.
Sea ice, Ice physics, Ice crystal structure, Ocean currents.

Field observations at 60 sites located in the fast or near-fast ice along a 1200-km stretch of the north coast of Alaska between the Bering Strait and Barter Island have shown that 95% of the ice samples exhibit striking c-axis alignments within the horizontal plane. In all cases the degree of preferred orientation increased with depth in the ice. Representative standard deviations around a mean direction in the horizontal plane are commonly less than 10 deg for samples collected near the bottom of the ice. The general patterns of the alignments support the correlation between the preferred c-axis direction and the current direction at the ice water interface suggested by Weeks and Gow (1978). A comparison between c-axis alignments and instantaneous current measurements made at 42 locations shows that the most frequent current direction coincides with mean c-axis direction. The c-axis alignments are believed to be the result of geometric selection, with the most favored orientation being that in which the current flows normal to the (0001) plates of ice that comprise the dendritic sea ice seawater interface.

34-2672
Traveling wave solutions of saturated-unsaturated flow through porous media.
Nakano, Y., *Water resources research*, Feb. 16, 1980, 16(1), MP 1278, p.117-122, 9 refs.
Wave propagation, Water flow.

Traveling wave solutions to the problem of saturated-unsaturated flow of water through a uniform porous medium are derived, and the regularity properties of the solutions are studied. It is found that a singularity occurs in the higher-order derivatives of flux with respect to the space coordinate in the solutions at water tables and that the water tables can be generally interpreted as propagating acceleration waves of the *n*th order, where *n* is a positive integer.

34-2673
Pilot scale study of overland flow land treatment in cold climates.
Jenkins, T.F., et al, *Progress in water technology*, 1979, 11(4/5), MP 1279, p.207-214, 11 refs.
Martel, C.J.
Waste treatment, Water chemistry, Irrigation, Cold weather tests.

Primary and secondary wastewaters were applied to separate sections of an overland flow site. The dimensions of each section were 3 m in width by 30 m in length and the system was graded to a five percent slope. The site was planted with orchard grass and tall fescue. A one-year acclimation period was allowed to obtain a good cover. Wastewater was applied to the site for one month before onset of the study to establish a high level of microbial activity. Applied wastewater as well as surface and subsurface flows were monitored for NO-3, NH+4, TKN, BOD, suspended solids, pH, conductivity, and total phosphorus. The results indicate excellent warm weather performance for removal of oxygen demanding substances, suspended matter and nitrogen. Treatment efficiency of suspended solids remained high throughout the winter while treatment of BOD declined to unacceptable levels at soil temperatures below 4C. Nitrogen treatment declined rapidly below 14C. The form of nitrogen applied to overland flow was found to affect performance with nitrate being the less desirable form. Phosphorus treatment by overland flow was found to be about 80% in the summer months, declining to nil during the winter.

34-2674
Low-frequency surface impedance measurements at some glacial areas in the United States.
Arcone, S.A., et al, *Radio science*, Jan.-Feb. 1980, 15(1), MP 1280, p.1-9, 14 refs.
Delaney, A.J.
Radio waves, Wave propagation, Radio communication.

Measurements of apparent resistivity and phase derived from the complex surface impedance of radio waves propagating in the ground wave mode at frequencies in the radio navigational aid band (between 257 and 382 kHz) are presented. Areas encompassing between 400 and 800 sq km that covered a variety of glacial sediments, land forms, and some crystalline bedrock types were surveyed. The degree of dispersion found in resistivity values reflects the dispersion in grain size, while the average resistivity increases with mean grain size. Dielectric properties are suggested as one cause of the low phases observed over crystalline bedrock. The combination of apparent resistivity and phase data implies that the resistivity measurements

are consistent in about 50% of the areas with previous measurements of field strength attenuation performed in the AM broadcast band

34-2675
Analysis of circulation patterns in Grays Harbor, Washington, using remote sensing techniques.
Gatto, L.W., *Marine geodesy*, 1980, Vol.3, MP 1283, p.289-323, 45 refs.
Remote sensing, Tidal currents, Water flow.
The objective of this investigation was to analyze surface circulation patterns in Grays Harbor, Washington, during flood and ebb tide, using National Aeronautics and Space Administration (NASA) aerial photographs and thermal-IR imagery and low altitude aerial photographs of uranine dye drogues. The application of LANDSAT-1 and passive microwave imagery was evaluated but did not prove useful. Water temperature, salinity, and suspended sediment data and the results of hydraulic model studies were used to verify and supplement interpretations from the photographs and imagery. The use of remote sensing techniques in conjunction with ground truth data and hydraulic model results, when available, provides a more complete perspective of estuarine processes than is available by using conventional shipboard surveys alone

34-2676
Relaxation processes in arctic ice fields. ₍Relaksatsionnye protsessy v ledianykh poliakh Arktiki₎,
Bogorodskii, V.V., et al, *Akademiia nauk SSSR Doklady*, 1980, 250(3), p.589-592, In Russian. 9 refs
Smirnov, V.N.
Relaxation (mechanics), Ice relaxation.

34-2677
Possible mechanism of ice splinter production during riming.
Choularton, T.W., et al, *Nature*, Aug. 24, 1978, 274(5673), p.791-792, 9 refs.
Latham, J., Mason, B.J.
Ice crystal growth, Supercooled clouds, Particle size distribution, Ice physics, Hoarfrost, Ice pressure.

34-2678
Mechanism of ice splinter production during riming.
Mossop, S.C., *Geophysical research letters*, Feb. 1980, 7(2), p.167-169, 9 refs.
Ice crystal growth, Cloud physics, Particle size distribution, Supercooled clouds, Drops (liquids), Hoarfrost, Doped ice.

34-2679
Bank erosion in the southern Mackenzie River Delta, Northwest Territories, Canada.
Outhet, D.N., Edmonton, University of Alberta, 1974, 89p., M.S thesis. 51 refs.
Shore erosion, Banks (waterways), Shoreline modification, Permafrost, River flow, Ice conditions, Wind factors, Bottom sediment, Aerial surveys, Environments, Canada—Northwest Territories—Mackenzie River.

34-2680
Environmental assessment of the Alaskan continental shelf. Vol. 6. Biological studies. Boulder, Colorado. Outer Continental Shelf Environmental Assessment Program, 1979, 852p., Principal investigators' final project reports. Numerous refs.
Marine biology.

34-2681
Environmental assessment of the Alaskan continental shelf. Vol.2. Physical science studies. Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, 1979, 745p., Principal investigators' final project reports. For selected individual reports see 34-2682 through 34-2683.
Oil spills, Sea ice, Sediments, Shoreline modification.

34-2682
Dynamics of near shore ice.
Colony, R., Environmental assessment of the Alaskan continental shelf. Vol.2. Physical science studies. Principal investigators' final project reports, Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, 1979, p.156-180.
Sea ice, Pack ice, Drift, Remote sensing.

34-2683
Study of climatic effects on fast ice extent and its seasonal decay along the Beaufort-Chukchi coasts.
Barry, R.G., Environmental assessment of the Alaskan continental shelf. Vol.2 Physical science studies. Principal investigators' final project reports, Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, 1979, p.272-375, Numerous refs.
Fast ice, Ice conditions, Seasonal variations, Climatic factors, Synoptic meteorology, Remote sensing.

34-2684
Exogenic relief forming process in the cryolithozone. ₍Ekzogennoe rel'efoobrazovanie v kriolitozone₎,
Sukhodrovskii, V.L., Moscow, Nauka, 1979, 280p., In Russian with English table of contents enclosed. Refs. p.252-278.
Geocryology, Cryogenic soils, Cryogenic structures, Thermokarst, Frost heave, Ground ice, Patterned ground, Permafrost weathering, Slope processes, Solifluction, Rock streams, Human factors, Environmental protection.

34-2685
Building design for construction in the North. ₍Konstruktsii grazhdanskikh zdanii dlia stroitel'stva na Severe₎,
Vas'kovskii, A.P., et al, Leningrad, Stroiizdat, 1979, 135p., In Russian with English table of contents enclosed. 16 refs.
Shkharov, N.D.
Residential buildings, Permafrost beneath structures, Foundations, Piles, Roofs, Walls, Large panel buildings, Thermal insulation, Concrete structures, Design.

34-2686
Winter operation of water navigation objects. ₍Zimniaia ekspluatatsiia ob"ektov vodnogo transporta₎,
Ivanov, L.V., Moscow, Transport, 1978, 211p., In Russian with English table of contents enclosed. 69 refs.
Ships, Winter maintenance, Channels (waterways) Locks (waterways), Sluices (hydraulic engineering), Docks, Ports, Polynyas, Ice breaking, Ice prevention.

34-2687
Fundamentals of remote sensing methods of measuring water equivalent of snow and soil moisture content from terrestrial gamma radiation. ₍Osnovy distantsionnykh metodov izmereniia vlagozapasov v snege i vlazhnosti pochv po gamma-izlucheniiu Zemli₎,
Dmitriev, A.V., et al, Leningrad, Gidrometeoizdat, 1979, 104p., In Russian with English table of contents enclosed. 99 refs.
Fridman, Sh.D.
Snow surveys, Telemetering equipment, Aerial surveys, Airborne equipment, Gamma irradiation, Snow water equivalent, Soil water, Route surveys.

34-2688
Winterizing the BM-21. ₍Podgotovka BM-21 k zimnei ekspluatatsii₎,
Kuprin, G., *Tekhnika i vooruzhenie*, Sep. 1979, No.9, p.22-23, In Russian.
Military equipment, Cold weather operation, Winter maintenance, Artillery.

34-2689
DZ-126 Bulldozer-ripper. ₍Bul'dozerno-rykhlitel'nyi agregat DZ-126₎,
Zakharchuk, B.Z., et al, *Stroitel'nye i dorozhnye mashiny*, June 1979, No.6, p.9-10, In Russian.
Veledniitskii, IU.B., Tanin-Shakhov, V.S.
Excavation, Frozen ground.

34-2690
Universal single-bucket hydraulic excavator EO-4121A. ₍Odnokovshovyi universal'nyi gidravlicheskii ekskavator EO-4121A₎,
Gavrilov, N.I., et al, *Stroitel'nye i dorozhnye mashiny*, Aug. 1979, No.8, p.2-4, In Russian.
Rustanovich, A.V., Makukh, D.A.
Excavation, Frozen ground.

34-2691
SP-62 Hydraulic hammer for the EO-4121A hydraulic excavator. ₍Gidromolot SP-62 dlia gidravlicheskogo ekskavatora EO-4121A₎,
Dmitrevich, IU.V., et al, *Stroitel'nye i dorozhnye mashiny*, Aug. 1979, No.8, p.4-5, In Russian.
Erofeev, L.V., Sokolov, V.A.
Excavation, Frozen ground.

34-2692
Snow plow and loader DE-228 on a wheel undercarriage. ₍Snegoochistitel'-snegopogruzchik DE-228 na kolesnom shassi₎,
Balaklo, V.N., et al, *Stroitel'nye i dorozhnye mashiny*, Aug. 1979, No.8, p.7-9, In Russian.
Kladov, N.P., Mikhailiuk, V.P., Ivanov, A.N.
Snow removal, Winter maintenance, Roads.

34-2693
Digging-wheel excavator ETR-134 for trenching. ₍Transheinyi rotornyi ekskavator ETR-134₎,
Osipenko, B.V., et al, *Stroitel'nye i dorozhnye mashiny*, Nov. 1979, No.11, p.5-6, In Russian.
Panceev, A.V., Figlin, I.Z., Fedorenkov, O.A.
Excavation, Frozen ground.

34-2694
Modernized KB-100.OAS tower crane designed for the North. ₍Modernizirovannyi bashennyi kran KB-100.OAS v severnom ispolnenii₎,
Al'perovich, A.I., et al, *Stroitel'nye i dorozhnye mashiny*, Nov. 1979, No.11, p.8-10, In Russian
Mokhov, N.N., Solokha, A.M.
Construction equipment, Cranes (hoists).

34-2695
Cycle diagrams of icebreaker steam-turbine plants. ₍Teplovye skhemy paroturbinnykh ustanovok ledokolov₎,
Il'dovin, B.S., *Sudostroenie*, Jan. 1979, No.1, p.28-34, In Russian. 10 refs
Icebreakers, Engines, Design.

34-2696
Calculation of working conditions of the propulsion plant of icebreakers and of their movement in the "running-on" mode. ₍Raschet parametrov raboty GEU ledokolov i ikh dvizheniia v rezhime "nabegov"₎,
IArovenko, V.A., *Sudostroenie*, Feb. 1979, No.2, p.36-38, In Russian. 2 refs.
Icebreakers, Propellers, Design.

34-2697
Coal mine construction according to the projects of the Siberian State Planning Design and Experimental Institute of Mining. ₍Stroitel'stvo ugol'nykh predpriiatii po proektam Sibgiproshakhta₎,
Materi, V.G., *Shakhtnoe stroitel'stvo*, May 1979, No.5, p.6-7, In Russian.
Mining, Shafts (excavations), Buildings, Foundations, Permafrost beneath structures, Earthquakes, USSR—Yakutia.

34-2698
Improving the process of drilling holes for artificial freezing. ₍Uluchshit' kachestvo bureniia zamorazhivaiushchikh skvazhin₎,
Shparber, P.A., *Shakhtnoe stroitel'stvo*, Aug. 1979, No.8, p.22-23, In Russian.
Mining, Artificial freezing, Boreholes.

34-2699
Treatment and agricultural utilization of waste water in the northwestern Russian Soviet Federated Socialist Republic. ₍Sel'skokhoziaistvennoe ispol'zovanie i obezvrezhivanie stochnykh vod v usloviiakh severo-zapada RSFSR₎,
Shevelev, IA.Z., *Vodosnabzhenie i sanitarnaia tekhnika*, 1979, No.6, p.9-11, In Russian.
Waste treatment, Water.

34-2700
Solidification of mortars with antifreeze admixtures. ₍Tverdenie rastvorov s protivomoroznymi dobavkami₎,
Shishkin, A.A., et al, *Zhilishchnoe stroitel'stvo*, June 1979, No.6, p.19-20, In Russian.
Khmelevskii, V.A.
Cold weather construction, Grouting, Mortars, Antifreezes, Cement admixtures.

34-2701
Construction of residential buildings in the Far East. ₍O zhilishchnom stroitel'stve Dal'nego Vostoka₎,
Nesterov, V.V., *Zhilishchnoe stroitel'stvo*, July 1979, No.7, p.4-5, In Russian.
Residential buildings, Permafrost beneath structures. Baykal Amur railroad.

34-2702
Air heating of underground pedestrian crossings. ₍Vozdushnyi progrev podzemnykh peshekhodnykh perekhodov₎,
Muftiev, A.D., *Zhilishchnoe stroitel'stvo*, July 1979, No.7, p.26, In Russian.
Road icing, Pavements, Electric heating.

34-2703
Thermal insulation of external walls of buildings. ₍Teplozashchita naruzhnykh ograzhdenii grazhdanskikh zdanii₎,
Zheleznyi, V.I., *Zhilishchnoe stroitel'stvo*, Sep. 1979, No.9, p.4, In Russian.
Walls, Thermal insulation, Buildings.

34-2704
Field studies of Series 91 residential buildings. ₍Naturnye issledovaniia zhilykh zdanii serii 91₎,
Shilov, N.N., et al, *Zhilishchnoe stroitel'stvo*, Sep. 1979, No.9, p.5-6, In Russian.
Mushinskii, V.IU.
Large panel buildings, Lightweight concretes Concrete structures, Ventilation, Thermal regime.

34-2705
Movement of freezing front inside pipelines after cessation of pumping. [Prodvizhenie granitsy promerzaniia vnutri truboprovoda pri prekrashchenii perekachki].
Novoselov, V.F., et al. *Russia Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Neft' i gaz*, 1979, No.6, p.67-79, In Russian. 19 refs.
Tugunov, P.I.
Pipeline freezing, Frost penetration, Heat transfer, Analysis (mathematics).

34-2706
Heat and mass transfer during melting of perennially frozen rocks surrounding producing wells. [Teplomassoperenos v protsesse rasteplenia vechnomerzlykh porod okruzhaiushchikh ekspluatatsionnuiu skvazhinu].
Antipov, V.L., et al. *Russia Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Neft' i gaz*, 1979, No.9, p.47-51, In Russian. 8 refs.
Petroleum industry, Wells, Permafrost thermal properties, Heat transfer, Mass transfer, Analysis (mathematics).

34-2707
Influence of human factors on phytoplankton and water quality of the Angara River. [Vliianie antropogennykh faktorov na fitoplankton i kachestvo vody Angary].
Kozhova, O.M., et al. *Vodnye resursy*, 1980, No.1, p.61-66, In Russian. 12 refs.
Kobanova, G.I.
Permafrost beneath rivers, Water temperature, Algae, Biomass, Human factors, Environmental protection, USSR—Angara River.

34-2708
Lithodynamics of river deltas in North Siberia. [Litodinamika del't rek severa Sibiri].
Korotaev, V.N., et al. *Vodnye resursy*, 1980, No.1, p.138-145, In Russian.
Sidorchuk, A.IU., Chalov, R.S.
Deltas, Cryogenic soils, Soil erosion, Active layer.

34-2709
Preparing radar equipment for winter operation. [Podgotovka RLV k ekspluatatsii v zimnikh usloviakh].
Udot, B. *Vestnik protivovozdushnoi oborony*, Aug 1979, No.8, p.60-63, In Russian.
Military equipment, Radar, Cold weather operation.

34-2710
Origin and development of the Surgut wooded marshes. [Proiskhozhdenie i razvitie bolot Surgutskogo Poles'ia].
Liss, O.L., et al. *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Nauchnye doklady vysshei shkoly. Biologicheskie nauki*, 1979, No.8(188), p.86-91, In Russian. 10 refs.
Polkoshnikova, O.V.
Swamps, Forest land, Paludification, Soil formation, Cryogenic soils, Podsol, Peat, Forest ecosystems, Landscape types.

34-2711
Experimental and field observation of the ascending migration of iron and humus substances in freezing soils. [Nabliudeniia za voskhodiashchei migratsiei zheleza i gumusovykh veshchestv pod vliianiem promorazhivaniia v opyte i prirode].
Archegova, I.B., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Nauchnye doklady vysshei shkoly. Biologicheskie nauki*, 1979, No.8(188), p.103-107, In Russian. 5 refs.
Soil freezing, Frost penetration, Soil composition, Soil chemistry.

34-2712
Engineering at the ends of the earth: polar ocean technology for the 1980's. Washington, D.C., National Research Council, Assembly of Engineering, Marine Board, 1979, 74p., ADA-074 161, Refs. p.61-65.
Research projects, Polar regions.
Ocean engineering operations in polar waters, particularly in the Arctic, will increase during the foreseeable future as efforts continue to recover commercially valuable resources such as petroleum, fish, and various minerals. In the Antarctic, krill resource assessment and experimental fishing projects are being undertaken by several countries in preparation for large-scale development. In addition to U.S. activities, other nations, notably Canada, the Soviet Union, Japan, West Germany, and Norway are investing substantial funds in developing polar ocean engineering technologies. This report is a review of polar ocean engineering research and technology that are considered necessary to support of commercial and scientific operations during the decade of the 1980's.

34-2713
Interannual atmospheric variability and associated fluctuations in Arctic sea ice extent.
Walsh, J.E., et al. *Journal of geophysical research*, Nov 20, 1979, 84(C11), p.6915-6928, 27 refs.
Johnson, C.M.
Sea ice distribution, Ice conditions, Atmospheric circulation, Atmospheric pressure, Surface temperature, Meteorological factors, Ice air interface.

34-2714
Polar gas line would use new pipelay method. *Oil and gas journal*, Mar 24, 1980, 78(12), p.50.
Gas pipelines, Pipe laying, Polar regions.

34-2715
GSI uses tracked vibrators on Alaska's North Slope.
Brooks, L.D. *Oil and gas journal*, Mar 24, 1980, 78(12), p.195.
Tracked vehicles, Seismic surveys, Polar regions, Vibration.

34-2716
Synoptic climatology of the Beaufort Sea Coast of Alaska.
Moritz, R.E., *Colorado. University. Institute of Arctic and Alpine Research. Occasional paper*, 1979, No.30, 176p., Refs. p.171-176.
Atmospheric circulation, Climatology, Sea ice distribution, LANDSAT, Shores, Statistical analysis, Mapping, Beaufort Sea.

34-2717
Glacier flow measuring instrument. [Gletscherbewegungsmessgerät].
Reimann, R., *Material und Technik*, 1979, 7(4), p.182-186, In German. 2 refs.
Glacier flow, Measuring instruments.

34-2718
Trafficability maps for all-terrain vehicles. [Framkomlighetskartor för terrängfordon].
Wastenson, L. *Ymer. Arsbok*, 1972 (pub. 1973), p.223-238, In Swedish with English summary. 17 refs.
All terrain vehicles, Topographic features, Soil trafficability, Terrain identification, Classifications.

34-2719
Exploration of the polar regions.
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Glaciology, Exploration, Environments, Research projects.
The development of polar exploration and scientific research programs as seen through the eyes and experiences of one who participated in that development is presented. The author traces observation and measurement techniques of ice thickness, core drilling, oceanography, and hydrography in Arctic areas from the late 1930's through the late 1950's. He then shifts to Antarctica to describe IGY activities and administering the post-IGY research programs and closes by suggesting several reasons why polar research should continue and the general trend the research should take.

34-2720
Sediment transport in Norton Sound, Alaska.
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Drake, D.E.
Suspended sediments, Sediment transport, Tidal currents, Remote sensing, Wind factors, Ice cover effect, LANDSAT, Bottom sediment, Storms.

34-2721
Geologic framework, hydrocarbon potential, environmental conditions, and anticipated technology for exploration and development of the Beaufort Shelf north of Alaska.
Grantz, A., et al. *U.S. Geological Survey. Open-file report*, 1980, No.80-94, 42p., Refs. p.31-34.
Geological surveys, Subsea permafrost, Offshore drilling, Pack ice, Ice scoring, Oceanographic surveys, Ice erosion, Petroleum products, Hydrocarbons, Meteorological factors, Economic analysis, Crude oil.

34-2722
Baffin Island quaternary environments; an annotated bibliography.
Andrews, M., et al. *Colorado. University. Institute of Arctic and Alpine Research. Occasional paper*, 1980, No.33, 123p., c460 refs.
Andrews, J.T.
Bibliographies, Glaciology, Glacial geology, Marine geology, Weathering, Canada—Northwest Territories—Baffin Island.

34-2723
On the effect of topographic orientation on the variations of glacier length.
Kasser, P. *Rivista italiana di geofisica e scienze affini*, 1978-1979, Vol.5, p.93-96, 9 refs.
Glacier oscillation, Glacier flow, Topographic effects, Glacier tongues, Slope orientation.

34-2724
Determination of local permeabilities by a freezing process, in connection with predicting the success of a filter regeneration method. [Gefrierverfahren zur Bestimmung lokaler Durchlässigkeiten im Zusammenhang mit Erfolgsprognose für eine Filterregenerationsmetode].
Schueff, H.O. *Gas Wasser Abwasser*, 1979, 11(933), p.473-478, In German with French and English summaries.
Permeability, Filters, Freezing, Hydraulic jets, Liquefied gases, Laboratory techniques.

34-2725
Winter environmental data survey of the drainage basin of the upper Susitna River, Alaska.
Bilello, M.A., *U.S. Army Cold Regions Research and Engineering Laboratory*, Apr 1980, SR 80-19, 30p., ADA-086 931, 6 refs.
Climate, Ice cover, Snow cover, Meteorological data, Winter, United States—Alaska—Susitna River.
Basic data on the winter climate and measurements on all available snow and ice cover conditions were compiled for an area in and around the upper Susitna River basin of Alaska. The 10 years of tabulated data (from Sep 1964 to May 1974) for 16 locations include average monthly values of air temperature, precipitation amounts (including total snowfall) and maximum depth of snow on the ground. Ice thickness measurements and other related winter surface conditions on rivers in the basin are included in the report. Detailed observations on physical properties of the snow cover and the rate at which soil thaws in the spring are also provided for selected stations near the area under study.

34-2726
ICEX: Ice and climate experiment; report of Science and Applications Working Group. Greenbelt, Maryland, Goddard Space Flight Center, 1979, c118p., Includes separately bound synopsis of the project. Numerous refs.
Research projects, Sea ice, Icebergs, Ice sheets, Ocean currents, Climate, Remote sensing, Spaceborne photography, Antarctica, Greenland.
In this report the various connections in both arctic and antarctic regions between ice in its many forms and world climate are shown: global heat balance effects from sea ice and the role of ice sheets in climatic processes; the hazards of ice and snow related to urban areas and the economic impact of removing these hazards; the effect of sea ice on offshore oil discoveries and recoveries; use of the fresh water in icebergs, glaciers, and snow cover. The ICEX program expects to treat all of these aspects through a multidisciplinary, international approach involving new observational tools, theoretical studies, and applications of new knowledge. The primary tool for the program is a satellite system with numerous remote sensors designed specifically for observing important features of snow, sea ice, and the ice sheets of Greenland and Antarctica.

34-2727
Enthalpy and heat capacity of liquid water and the ice polymorphs from a random network model.
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Rice, S.A.
High pressure ice, Ice physics, Heat capacity, Mathematical models.

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Clean up your snow rigs now for summer storage.
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Equipment, Snow removal, Maintenance, Storage.

34-2729
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Carroll, T.R., Vandemark, S.C.
Snow survey tools, Snow water equivalent, Gamma irradiation, Aerial surveys, Remote sensing, Airborne equipment, United States.

34-2730
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Kuittinen, R., et al. *Hydrological sciences bulletin*, Mar. 1980, 25(1), p.63-75, 8 refs.
Vironmäki, J.
Snow water equivalent, Spectroscopy, Gamma irradiation, Remote sensing.

34-2731
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Endrestøl, G.O., *Hydrological sciences bulletin,* Mar. 1980, 25(1), p.77-83, 9 refs.
Snow water equivalent, Gamma irradiation, Remote sensing, Snow survey tools, Aerial surveys.

34-2732
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Pegoev, N.N., Stroganov, A.N.
Snow water equivalent, Snow survey tools, Gamma irradiation, Soil water, Snow cover, Aerial surveys.

34-2733
Icebergs are a frozen asset.
Reynolds, J.M., *Geographical magazine,* Dec. 1979, 52(3), p.177-180, 185.
Iceberg towing, Ice shelves, Economic development.
The author sketches the uses to which man has put natural ice during the last century and this. Norway exported ice to Britain to preserve flounder, halibut, and salmon, other glacier ice exporting ventures were tried, some succeeded, others did not, and as ice manufacturing became cheaper than glacier harvesting, exporting eventually ceased. During WWII the concept of an aircraft carrier made of ice was developed to the prototype stage, from this experiment emerged the material still in use: pykrete, a combination of water and sawdust which, when frozen, behaves like concrete. Currently, exploitation trends toward towing bergs from the vast Antarctic resources to South America and the Middle East. As an alternative to towing, a possible water harvesting system could be submersible pumps and pipelines to tap the fresh water beneath the shelf ice. It is estimated that such a system could produce forty cubic kilometers of fresh water annually from George VI Ice Shelf.

34-2734
Characteristics of soil formation in Siberia. [Spetsifika pochvoobrazovaniia v Sibiri].
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Cryogenic soils, Soil formation, Landscape types, Tundra, Taiga, Steppes.

34-2735
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Soil formation, Cryogenic soils, Landscape types, Tundra, Taiga, Steppes.

34-2736
Comparative characteristics of sod-forest, sod-taiga and brown forest soils of Siberia and the Far East. [Sravnitel'naia kharakteristika dernovykh lesnykh, dernovykh taezhnykh i burykh lesnykh pochv Sibiri i Dal'nego Vostoka],
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Targul'ian, V.O.
Cryogenic soils, Soil formation, Landscape types, Taiga, Soil profiles, Snow cover effect.

34-2737
Peculiarities of gley soils in the Yamal-Gydansk tundra. [Osobennosti gleezemov IAmalo-Gydanskoi tundry],
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Cryogenic soils, Soil formation, Landscape types, Tundra, Soil profiles, Active layer.

34-2738
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Tiumentsev, N.F., et al, Spetsifika pochvoobrazovaniia v Sibiri (Characteristics of soil formation in Siberia) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.53-60, in Russian. 11 refs.
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Cryogenic soils, Mapping, Economic analysis, Tundra, Forest tundra, Taiga.

34-2739
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Cryogenic soils, Podsol, Soil formation, Soil chemistry, Soil profiles, Taiga.

34-2740
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Cryogenic soils, Taiga, Paludification, Soil formation, Soil profiles.

34-2741
Ecologic influence on the formation of complex humus profiles of Siberian southern taiga soils. [Rol' prirodnykh uslovii v formirovanii slozhnogo gumusovogo profilia pochv iuzhnotaezhnoi podzony Sibiri].
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Cryogenic soils, Taiga, Landscape types, Soil formation, Soil profiles.

34-2742
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Lysova, G.V.
Swamps, Peat, Soil formation, Soil chemistry, Cryogenic soils.

34-2743
Gleying effect on dark gray heavy loam forest soils in West Siberia. [Vliianie ogleeniia na svoistva temnoserykh lesnykh tiazhelosuglinistykh pochv Zapadnoi Sibiri].
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Soil formation, Loams, Soil freezing, Seasonal freeze thaw, Soil chemistry, Soil profiles, Snow cover effect.

34-2744
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Cryogenic soils, Glacial deposits, Alluvium, Soil formation, Sands, Podsol, Permafrost hydrology, Soil profiles, USSR—Tyumen'.

34-2745
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Cryogenic soils, Permafrost depth, Active layer, Soil freezing, Permafrost hydrology, Thermal regime.

34-2746
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Site surveys, Mapping, Engineering geology, Spaceborne photography, Slope processes, Geocryology, Permafrost hydrology, Soil erosion, Cryogenic soils, Baykal Amur railroad.

34-2747
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Engineering geology, Gullies, Forecasting.

34-2748
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Engineering geology, Slope processes, Mudflows, Snow cover effect, Snowmelt.

34-2749
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Slope processes, Soil mechanics, Rock streams.

34-2750
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Spaceborne photography, Engineering geology, Slope processes, Mapping.

34-2751
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Slope processes, Mudflows, Solifluction, Avalanches, Thermokarst, Rock streams, Baykal Amur railroad.

34-2752
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Permafrost distribution, Permafrost thickness, Engineering geology, Permafrost hydrology, Baykal Amur railroad.

34-2753
Engineering-geomorphological conditions of the western Baykal Amur railroad area from satellite photographs. [Inzhenerno-geomorfologicheskie usloviia zapadnogo uchastka BAM po materialam aerokosmicheskogo deshifrirovaniia].
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Spaceborne photography, Aerial surveys, Engineering geology, Mapping, Baykal Amur railroad.

34-2754
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Avalanche engineering, Avalanche forecasting.

34-2755
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Slope processes, Avalanches, Snowmelt, Mudflows.

34-2756
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Permafrost hydrology, Active layer, Soil erosion, Human factors, Vegetation factors, Baykal Amur railroad.

34-2757
Origin of massive sand deposits in the Baykal Amur railroad area and their economic development. [Proiskhozhdenie peschanykh massivov v zone BAM i usloviia ikh khoziaistvennogo osvoeniia].
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Sporadic permafrost, Active layer, Sands, Wind erosion, Baykal Amur railroad.

34-2758
Space methods of studying valleys and naleds in the Chul'man region. [Kosmicheskie metody izucheniia dolin i naledei Chul'manskogo raiona].
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Permafrost hydrology, Taliks, Naleds, Ground ice, Aerial surveys, Spaceborne photography.

34-2759
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Engineering geology, Site surveys, Mapping, Slope processes, Geocryology, Baykal Amur railroad.

34-2760
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Pipeline freezing, Liquid cooling.

34-2761
Thixotropic texture of Gydan Peninsula soils. [Osobennosti tiksotropnykh struktur pochv poluostrova Gydan].
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Cryogenic soils, Soil texture, Soil structure, Thixotropy, Tundra.

34-2762
Geography and origin of soils in the northwestern part of the West Siberian Plain and the adjacent polar Ural foothills. [K geografii i genezisu pochv severo-zapadnoi chasti Zapadno Sibirskoi ravniny i prilegaiushchikh predgorii Poliarnogo Urala].
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Landscape types, Tundra, Forest tundra, Alpine tundra, Cryogenic soils, Soil formation, Polar regions.

34-2763
Regularities governing the distribution, temperature and thickness of permafrost in the northwestern part of the West Siberian platform. [Osnovnye zakonomernosti rasprostraneniia, temperatury i moshchnosti mnogoletnemerzlykh porod severo-zapada Zapadno-Sibirskoi plity].
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Charts, Permafrost distribution, Permafrost thickness, Frozen rock temperature, Active layer.

34-2764
Noncoalescing perennially frozen rocks in the polar part of West Siberia. [Neslivaiushchiesia merzlotnye porody v pripoliarnykh raionakh Zapadnoi Sibiri].
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Discontinuous permafrost, Permafrost depth, Permafrost structure, Permafrost thickness, Snow cover effect, Vegetation factors, Polar regions.

34-2765
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Permafrost thermal properties, Frozen rock temperature, Charts, USSR—Gydan Peninsula.

34-2766
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Cryogenic soils, Landscape types, Tundra, Forest tundra, Soil temperature, Snow cover effect, Vegetation factors.

34-2767
Chemical composition of ground ice as an indication of ice formation conditions and origin of the enclosing rocks. [Khimicheskii sostav podzemnykh l'dov kak pokazatel' uslovii ikh formirovaniia i genezisa vmeshchaiushchikh porod].
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Ground ice, Chemical composition, Ice formation, Permafrost origin.

34-2768
Pleistocene dynamics of West Siberian permafrost (computerized simulation). [Dinamika vechnoi merzloty Zapadnoi Sibiri v pleistotsene (po raschetam na EVM)].
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Pleistocene, Permafrost origin, Frost penetration, Permafrost thickness, Permafrost depth, Computerized simulation.

34-2769
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Geocryology, Surveys, Spaceborne photography, Photointerpretation, Thermokarst, Permafrost distribution, Mapping, Permafrost hydrology.

34-2770
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Mapping, Spaceborne photography, Geocryology, USSR—Yakutia.

34-2771
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Permafrost distribution, Frozen fines, Permafrost structure, Ground ice, Ice structure, Baykal Amur railroad.

34-2772
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Active layer, Permafrost depth, Permafrost structure, Cryogenic soils.

34-2773
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Maps, Active layer, Soil air interface, Heat transfer, Permafrost depth, Snow cover effect.

34-2774
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Shores, Permafrost structure, Slope processes, Solifluction, Thermokarst, USSR—Chukotskiy Peninsula.

34-2775
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Bottom sediment, Subsea permafrost, Frozen rock temperature, Chukchi Sea.

34-2776
Geocryologic-hydrologic regionalization of the northeastern Magadan region. [Nekotorye osobennosti merzlotno-gidrogeologicheskogo raionirovaniia severo-vostoka Magadanskoi oblasti].
Ivanova, L.D., Regional'nye i kriolitologicheskie issledovaniia v Sibiri (Regional and cryolithologic studies in Siberia) edited by I.A. Nekrasov, Yakutsk, Inst. merzlotovedeniia SO AN SSSR, 1979, p.60-68, In Russian. 9 refs.
Mapping, Permafrost distribution, Permafrost structure, Permafrost hydrology, USSR—Magadan.

34-2777
Geocryologic and geothermal conditions of the Zyryanka coal province. [Merzlotno-geotermicheskie usloviia Zyrianskogo uglenosnogo raiona].
Dorofeev, I.V., Regional'nye i kriolitologicheskie issledovaniia v Sibiri (Regional and cryolithologic studies in Siberia) edited by I.A. Nekrasov, Yakutsk, Inst. merzlotovedeniia SO AN SSSR, 1979, p.68-74, In Russian. 6 refs.
Permafrost thickness, Permafrost structure, Frozen rock temperature, Vegetation factors, USSR—Zyryanka River.

34-2778
Length of ground thawing season in East Yakutia. [Prodolzhitel'nost' sezona protaivaniia gruntov v Vostochnoi IAkutii].
Vasil'ev, I.S., Regional'nye i kriolitologicheskie issledovaniia v Sibiri (Regional and cryolithologic studies in Siberia) edited by I.A. Nekrasov, Yakutsk, Inst. merzlotovedeniia SO AN SSSR, 1979, p.74-83, In Russian. 11 refs.
Permafrost thickness, Active layer, Permafrost thermal properties, Ground thawing, USSR—Yakutia.

34-2779
Thermal regime of rocks beneath a large thermokarst lake in Central Yakutia. [Temperaturnyi rezhim gornykh porod pod krupnym termokarstovym ozerom v Tsentral'noi IAkutii].
Tishin, M.I., Regional'nye i kriolitologicheskie issledovaniia v Sibiri (Regional and cryolithologic studies in Siberia) edited by I.A. Nekrasov, Yakutsk, Inst. merzlotovedeniia SO AN SSSR, 1979, p.83-90, In Russian. 6 refs.
Permafrost beneath lakes, Thermokarst, Frozen rock temperature, Lakes.

34-2780
Seasonal freezing of bottom sediments in Lake Syrdakh. [Sezonnoe promerzanie donnykh gruntov oz. Syrdakh].
Tishin, M.I., Regional'nye i kriolitologicheskie issledovaniia v Sibiri (Regional and cryolithologic studies in Siberia) edited by I.A. Nekrasov, Yakutsk, Inst. merzlotovedeniia SO AN SSSR, 1979, p.91-97, In Russian. 2 refs.
Permafrost beneath lakes, Bottom sediment, Seasonal freeze thaw, Lakes.

34-2781
Development of permafrost and ground water naleds in the Iengra River Basin (the Baykal Amur railroad area). [Ob osobennostiakh razvitiia mnogoletnemerzlykh porod i naledei podzemnykh vod v basseine r. Iengry (trassa BAMa)].
Boltsov, A.V., Regional'nye i kriolitologicheskie issledovaniia v Sibiri (Regional and cryolithologic studies in Siberia) edited by I.A. Nekrasov, Yakutsk, Inst. merzlotovedeniia SO AN SSSR, 1979, p.98-107, In Russian. 9 refs.
Permafrost origin, Permafrost hydrology, Naleds.

34-2782
Influence of the frozen state of rocks on river shore erosion in permafrost areas. [Vliianie merzlogo sostoianiia porod na razmyv beregov rek kriolitozony].
Are, F.E., Regional'nye i kriolitologicheskie issledovaniia v Sibiri (Regional and cryolithologic studies in Siberia) edited by I.A. Nekrasov, Yakutsk, Inst. merzlotovedeniia SO AN SSSR, 1979, p.107-117, In Russian. 19 refs.
Rivers, Shore erosion, Permafrost structure, Ground ice.

34-2783
Ground ice and cryogenic structures of loose deposits in the Muysk Basin. [Podzemnye l'dy i kriogennoe stroenie rykhlykh otlozhenii iuzhnoi chasti Muiskoi vpadiny],
An, V.V., Regional'nye i kriolitologicheskie issledovaniia v Sibiri (Regional and cryolithologic studies in Siberia) edited by I.A. Nekrasov, Yakutsk, Inst. merzlotovedeniia SO AN SSSR, 1979, p.118-129, In Russian. 14 refs.
Sediments, Alluvium, Cryogenic structures, Ground ice.

34-2784
Formation of ice layers in coastal recesses of Arctic shores. [Formirovanie plastovykh l'dov v beregovykh nishakh arkticheskikh poberezhii],
Fartyshev, A.I., Regional'nye i kriolitologicheskie issledovaniia v Sibiri (Regional and cryolithologic studies in Siberia) edited by I.A. Nekrasov, Yakutsk, Inst. merzlotovedeniia SO AN SSSR, 1979, p.129-136, In Russian. 12 refs.
Shores, Ground ice, Permafrost structure.

34-2785
Origin of ground ice layers in the Yenisey River Valley. [O genezise plastovoi zalezhi podzemnogo l'da v doline r. Eniseia],
Kazanskii, O.A., Regional'nye i kriolitologicheskie issledovaniia v Sibiri (Regional and cryolithologic studies in Siberia) edited by I.A. Nekrasov, Yakutsk, Inst. merzlotovedeniia SO AN SSSR, 1979, p.136-143, In Russian. 5 refs.
River basins, Valleys, Permafrost structure, Ground ice.

34-2786
Studying wettability of mineral grains in disperse systems. [Izuchenie smachivaemosti mineral'nykh chastits dispersnykh sistem],
Romanov, V.P., Regional'nye i kriolitologicheskie issledovaniia v Sibiri (Regional and cryolithologic studies in Siberia) edited by I.A. Nekrasov, Yakutsk, Inst. merzlotovedeniia SO AN SSSR, 1979, p.143-152, In Russian. 14 refs.
Models, Frozen rocks, Sands, Grain size, Wettability.

34-2787
Annual cycle of surface albedo.
Kukla, G., et al, *Monthly weather review*, Jan. 1980, 108(1), p.56-68, 59 refs.
Robinson, D.
Albedo, Ice optics, Snow optics, Surface properties, Reflection, Solar radiation, Pack ice, Mountains.
Monthly mean surface albedo for the full spectral range of incoming solar radiation and average atmospheric properties is estimated for the period Apr. 1, 1974-Mar. 31, 1975. It can be considered approximately representative of average conditions in the last decade. The monthly global surface albedo, average without weighting for radiation income, ranges from 15.7% in August to 17.9% in December, with an annual average of 17.0%. This is higher than most previously published figures. The difference is partly due to the averaging method, and partly to more accurate satellite based information on snow and ice covers. Parameterized albedo values of characteristic surface types were compiled from published references. Estimates are zonally averaged separately for land and ocean in 2 deg latitudinal belts. (Auth.)

34-2788
Ice conditions in areas adjacent to the North Atlantic Ocean from July to September 1979. *Marine observer*, Jan. 1980, 50(267), p.42-46, 4 refs.
Sea ice distribution, Ice conditions, Pack ice, Air temperature, Atmospheric pressure, Wind factors, Seasonal variations.

34-2789
Alaska foundation hot-wired to prevent frost movement. *Engineering news-record*, Apr. 3, 1980, 204(14), p.20.
Foundations, Cold weather construction, Frost penetration, Frost protection, Heating, Thermal insulation, Frost action, Frost heave.

34-2790
Energy conservation design guidelines: including mass and insulation in building walls.
Dexter, M.E., *ASHRAE journal*, Mar. 1980, 22(3), p.35-38, 4 refs.
Thermal insulation, Walls, Buildings.

34-2791
Reducing heat loss through window retrofitting.
Hager, N.E., Jr., et al, *ASHRAE journal*, Mar. 1980, 22(3), p.55-57, 9 refs.
Phillips, W.H.
Thermal insulation, Windows, Panels, Heat loss.

34-2792
Glaciological survey in the bare ice area near the Allan Hills in Victoria Land, Antarctica.
Fumihiko, N., et al, *Tokyo. National Institute of Polar Research. Memoirs*, 1979, Special issue No.15, p.13-23, 9 refs.
Annexstad, J.O.
Glacier surveys, Glacier flow, Antarctica—Allan Hills, Antarctica—Mawson Glacier.
During the 1978-1979 field season, the third U.S.-Japan joint program entitled "Antarctic search for meteorites" was carried out on the plateau side of the Allan Hills in South Victoria Land. This program included a glaciological study to elucidate the mechanism of accumulation of a large number of meteorites in the bare ice area. In Dec. 1978, a triangulation chain with 20 stations, 15 km in length, was newly established in the Allan Hills bare ice field to investigate the ice flow. Values of elevation and coordinates (X,Y) of all stations are tabulated. (Auth. mod.)

34-2793
Building roadbeds along main pipelines. [Vozvedenie zemlianogo polotna vdol' magistral'nykh truboprovodov],
Plotskii, A.S., et al, *Avtomobil'nye dorogi*, Nov. 1979, No.11, p.10, In Russian.
Golenko, N.A., Naumov, V.G.
Roadbeds, Pipelines, Permafrost beneath structures, Roads.

34-2794
New soil stabilization technique. [Novyi metod ukrepleniia gruntov],
Lukanina, T.M., et al, *Avtomobil'nye dorogi*, Nov. 1979, No.11, p.10-11, In Russian.
Guriachkov, I.L., Levchenko, A.V.
Roads, Permafrost beneath structures, Soil stabilization, Cements, Frost resistance.

34-2795
"Inexpensive" icebreaker not so inexpensive. ["Deshevyi" ledokol—dorogoi ledokol],
Lamekhov, A., *Morskoi flot*, 1979, No.11, p.41, In Russian.
Icebreakers, Propellers, Ice breaking, Design.
Comments on the A. Peschanskii article "Controllable propellers for icebreakers", see 32-4650.

34-2796
Icebreakers with controllable propellers more reliable. [Ledokol s VRSh nadezhnee],
Ivanov, S., *Morskoi flot*, 1980, No.2, p.32-33, In Russian.
Icebreakers, Ice navigation, Propellers, Ice breaking.

34-2797
Increasing the effectiveness of exploratory excavations in frozen rocks. [O povyshenii effektivnosti provedeniia geologorazvedochnykh vyrabotok v merzlykh porodakh],
Tregub, A.M., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Geologiia i razvedka*, Feb. 1980, No.2, p.111-114, In Russian. 3 refs.
Blasting, Geological surveys, Explosives, Exploration, Permafrost.

34-2798
Revegetation of fir forests in the southern taiga of the Central Ural Mountains and Predural'e. [Vozobnovlenie pikhtovykh lesov iuzhnoi taigi Srednego Urala i Predural'ia],
Konovalov, N.A., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Lesnoi zhurnal*, 1979, No.3, p.5-7, In Russian. 7 refs.
Chernov, N.N.
Taiga, Landscape types, Revegetation.

34-2799
Physical and mechanical properties of Siberian larch wood preserved in permafrost for 24,500 years. [O fiziko-mekhanicheskikh svoistvakh drevesiny listvennitsy sibirskoi, nakhodivsheisia v usloviiakh vechnoi merzloty 24500 let],
D'iakonov, K.F., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Lesnoi zhurnal*, 1979, No.3, p.121-122, In Russian. 3 refs.
Gorbenko, A.F., Shchekin, V.A.
Wood, Fossils, Permafrost.

34-2800
Landscape method of studying snow cover for land reclamation. [Izuchenie snezhnogo pokrova landshaftnym metodom dlia tselei melioratsii zemel'],
Pashkang, K.V., et al, *Moscow. Universitet. Vestnik. Seriia 5 Geografiia*, Jan.-Feb. 1980, No.1, p.64-71, In Russian with English summary. 6 refs.
Shkalikov, V.A.
Swamps, Land reclamation, Snow surveys, Snow water equivalent, Vegetation factors.

34-2801
Naleds in the Aldan-Timpton interfluve. [Kharakteristika otnositel'noi nalednosti Aldano-Timptonskogo mezhdurech'ia],
Chizhova, N.I., *Moscow. Universitet. Vestnik. Seriia 4 Geologiia*, Jan.-Feb. 1980, No.1, p.60-63, In Russian. 3 refs.
Naleds, Aerial surveys, Photographic reconnaissance, USSR—Yakutia.

34-2802
Peculiarities of road maintenance in East Siberia and the Far East. [Osobennosti ekspluatatsii dorog Vostochnoi Sibiri i Dal'nego Vostoka],
Nikitin, G.G., *Avtomobil'nye dorogi*, Jan. 1980, No.1, p.19-20, In Russian.
Roads, Permafrost beneath structures, Winter maintenance, Embankments, Drainage.

34-2803
Report on model for winter hazard prevention on highway No.12 of Iwamizawa-shi, District of Okayama. [Ippan Kokudo 12-go Iwamizawa-shi Okayama chiku setsugai boshi koho mokei fudo jikken hokokusho],
Japan. Hokkaido Kaihatsukyoku. Kensetku Kiaki Kosakujo, Sapporo, Japan, Jan. 1978, 66p., In Japanese.
Ice prevention, Road maintenance, Winter maintenance, Road icing, Snow removal, Models, Snowdrifts.

34-2804
Drilling among the icebergs.
Davids, R.C., *Lamp*, Spring 1980, 62(1), p.2-7.
Crude oil, Oil recovery, Icebergs, Environmental protection, Offshore drilling, Davis Strait.

34-2805
How sub-zero weather helps a bridge contractor. *Engineering and contract record*, Apr. 1979, 92(4), p.50-51.
Bridges, Ice crossings, Glacial till.

34-2806
Scattering of solar radiation by hexagonal ice crystals.
Wendling, P., et al, *Applied optics*, Aug. 1, 1979, 18(15), p.2663-2671, 13 refs.
Wendling, R., Weickmann, H.K.
Ice crystal optics, Light scattering, Solar radiation, Analysis (mathematics).

34-2807
Swiss defroster ends salt use on Albany road. *American city and country*, Sep. 1979, 94(9), p.44-45.
Chemical ice prevention, Road icing, Damage, Environmental protection.

34-2808
Mining and the environment. [Gornye raboty i okruzhaiushchaia sreda],
Moisinets, V.N., et al, Moscow, Nedra, 1978, 191p., In Russian with English table of contents enclosed. 132 refs.
Griaznov, M.V.
Mining, Environmental protection, Air pollution, Water pollution, Revegetation.

34-2809
Flow lines on Antarctic ice shelves.
Crabtree, R.D., et al, *Polar record*, Jan. 1980, 20(124), p.31-37, 16 refs.
Doake, C.S.M.
Ice shelves, Glacier flow, Remote sensing, LANDSAT, Antarctica—Filchner Ice Shelf, Antarctica—Ronne Ice Shelf.
Satellite images of Ronne and Filchner ice shelves show a variety of surface features, many of which are believed to indicate flow lines in the ice. Sufficient imagery is now available from Landsat satellites to plot these features from mosaics. Although some of the features have been recognized from aircraft, it was not until an overall view was provided that the true extent of the features and their relationship to the major ice streams became apparent. Using this evidence together with published ice thickness data from radio echo and seismic sounding, flow patterns within the ice shelves and tributary glaciers can be inferred. Flow lines show that the major input to Filchner Ice Shelf is from Slessor and Recovery glaciers, while Support Force Glacier contributes less than one third. On Ronne Ice Shelf, flow lines indicate that most of the ice comes from Foundation Ice Stream in the east and from Evans Ice Stream and three other ice streams in the west; there is a large area of relatively slow moving ice in between. Ice thickness and velocity data are now needed in order to quantify the ice discharge. However, satellite imagery can be used to estimate the relative importance of glaciers feeding ice shelves and to delineate the flow patterns within them. (Auth.)

34-2810
Radio echo and magnetic sounding of the Antarctic ice sheet, 1978-79.
Drewry, D.J., et al, *Polar record*, Jan. 1980, 20(124), p.43-51, 13 refs.
Meldrum, D.T., Jankowski, E.
Ice sheets, Radio echo soundings, Magnetic surveys.
With work done in 1978-79, this cooperative venture between the Scott Polar Research Institute, U.S. National Science Foundation, and the Technical University of Denmark has now completed the radio echo and magnetic sounding of about 6.96 million sq km of Antarctica. Combined with soundings made by other groups, 70% of the continental area has now been surveyed for surface form, thickness, internal structure, rheology, thermodynamics, electrical properties, basal conditions and processes, and sub-ice geology. Methods and equipment are described and preliminary results in specific areas are given for: West Antarctic bedrock geophysics, Dufek Massif, Filchner Ice Shelf grounding zone, Thwaites Glacier, and southern Victoria Land.

34-2811
Radioisotope power for polar camps. *Stanford Research Institute. SRI journal*, Sep.1967, No.16, p.8-9, Translated into German in Polarforschung, 37(1/2):-169-171, 1967.
Radioactive isotopes, Electric power.
The feasibility of using radioisotope power for small polar stations is considered. Logistics of such fuel compared to conventional fuel is discussed and the cost of various radioisotopes given.

34-2812
Proceedings.
Symposium on Dynamics of Large Ice Masses, Ottawa, Aug. 1978, *Journal of glaciology*, 1979, 24(90), 520p., In English with French and German summaries. Includes subject and author indexes; abstracts of papers presented at the symposium but not published in full in this volume; abstracts of papers accepted for the symposium but not presented; and a general discussion which constituted the final session. For individual papers see: 34-2813 through 34-2845, or F-23178 through F-23199.
Meetings, Ice sheets, Ice shelves, Floating ice.
The symposium convened in Ottawa from August 21-25, 1978, organized by the International Glaciological Society, it was attended by nearly 120 scientists representing 11 different countries. The 35 papers included in this volume deal with a wide variety of topics including: glaciers and historical glaciology; ice sheet and sea ice dynamics; various ice sheet sounding techniques; mass balance, remote sensing, ice dating through cores, thickness measurement; and various modeling techniques. Many of the papers result from work done in Antarctica, especially the Ross Ice Shelf.

34-2813
Ice flow along the Byrd Station strain network, Antarctica.
Whillans, I.M., *Journal of glaciology*, 1979, 24(90), p.15-28, In English with French and German summaries. 20 refs.
Ice sheets, Ice creep, Strains, Ice mechanics, Models, Antarctica—Byrd Station.
The flow of the Antarctic ice sheet near Byrd Station is modeled using surface net accumulation-rate data, surface strain-rate data, and core-hole tilting results. The model empirically allows for the progressive development of ice fabric and for values of the vertical strain-rate nearer to zero at depth, and adjusts the strain-rates according to the effect of the climatic warming at the beginning of the Holocene. The validity of the model is supported by the agreements between calculated bed form and that measured by radar sounding, and between calculated and measured present-day ice-sheet thinning-rates. The ice was about 200 m thicker before thinning. The depth-age relationship for the Byrd Station ice core shows that the climatic change represented by the oxygen isotopic ratio of the ice began some 5,000 years sooner than in north Greenland but ended at about the same time. (Auth.)

34-2814
Stability of temperate ice caps and ice sheets resting on beds of deformable sediment.
Boulton, G.S., et al, *Journal of glaciology*, 1979, 24(90), p.29-43, In English with French and German summaries. 28 refs.
Jones, A.S.
Glacier flow, Glacier beds, Stability, Deformation.

34-2815
Thinning of the ice sheet in Mizuho Plateau, East Antarctica.
Naruse, R., *Journal of glaciology*, 1979, 24(90), p.45-52, In English with French and German summaries. 31 refs.
Ice sheets, Ice cover thickness, Snow accumulation, Antarctica—Mizuho Plateau.
Surveys of a triangulation chain 250 km in length were carried out in Dec. 1969 and Dec. 1973-Jan. 1974 along the surface contour lines from 2,250 m to 2,600 m in Mizuho Plateau. Horizontal velocities were obtained as small values near the Yamato Mountains, while they had maxima of more than 20 m/a around 39E 72S in the drainage of the Shirase Glacier. Submergence velocities showed large values in the region along 72S from 39E eastward to 43E. The amount of snow accumulation there, of average thickness 0.2 m/a, was not enough to compensate for the deficit of the ice mass caused by the submergence flow. It follows that the ice sheet was thinning there. It is suggested that the ice sheet of Mizuho Plateau is in an unstable condition as a whole. (Auth.)

34-2816
Basal sliding of a thinning ice sheet, Mizuho Plateau, East Antarctica.
Mae, S., *Journal of glaciology*, 1979, 24(90), p.53-61, In English with French and German summaries. 20 refs.
Ice sheets, Basal sliding, Ice cover thickness, Antarctica—Mizuho Plateau.
The Japanese Antarctic Research Expedition observed the thinning of the ice sheet, about 70 cm/year, in Mizuho Plateau. The thinning observed is analyzed using an equation of mass continuity. The result of the analysis indicates that the thinning is predominantly caused by the basal sliding and the basal sliding velocity is about 10 m/year. This sliding velocity is compared with the basal sliding velocity obtained by the calculation of the velocity due to internal deformation of the ice sheet. (Auth.)

34-2817
Characteristics of ice flow in Marie Byrd Land, Antarctica.
Rose, K.E., *Journal of glaciology*, 1979, 24(90), p.63-75, In English with French and German summaries. 25 refs.
Ice sheets, Glacier flow, Radio echo soundings, Antarctica—Marie Byrd Land.
Extensive radio echo-sounding has mapped the part of West Antarctica between Byrd Station, the Whitmore Mountains, the Transantarctic Mountains, and the Ross Ice Shelf. The ice sheet in this area is dominated by five major sub-parallel ice streams (A-E), which are up to 100 km wide and extend inland from the ground line of the Ross Ice Shelf for about 400 km. Their positions have been determined by crevassing seen on radio echo-sounding records, trimetrogon photographs, and Landsat imagery. The ice streams are characterized by their flat transverse cross-sections, while the intervening ice sheet exhibits domes and ridges. Ice flow lines are defined from the ice-surface contour pattern and the trend of the ice streams. It is apparent from this work that the flow line passing through Byrd Station joins ice stream D. The bedrock of the area is relatively smooth near the Ross Ice Shelf, becoming rougher near Byrd Station and especially so near the Whitmore Mountains. Bedrock troughs, which control the positions of the ice streams are believed to have a tectonic origin. In this paper the role of the ice streams in the glaciological regime of West Antarctica is investigated from radio-echo data and estimates of balance velocity, basal shear stress, and basal temperatures. (Auth.)

34-2818
Measured velocities of interior East Antarctica and the state of mass balance within the I.A.G.P. area.
Young, N.W., *Journal of glaciology*, 1979, 24(90), p.77-87, In English with French and German summaries. 20 refs.
Snow accumulation, Ice sheets, Mass balance, Antarctica—East Antarctica.
Recent measurements of accumulation and ice velocity made in the interior of East Antarctica indicate that a large sector between 80E and 135E and north of 80S has close to a zero net mass budget. This sector is within the study area for the International Antarctic Glaciological Project (I.A.G.P.) and covers a major portion of the area indicated for projects of special emphasis. Velocity measurements were made at a number of points on a traverse route from Mirny on the coast to Dome "C" in the interior. Accumulation measurements were made along this and other traverse routes, extending as far as Vostok by a number of methods. These included stake, stratigraphic, isotopic, and total beta-decay observations. The better accumulation data have allowed a review of the total mass input to be made. The true mass budget has been estimated by comparing velocities along the traverse routes and on a number of the outlet glaciers. For this purpose the area was divided into a number of drainage basins according to outlet at the coast. The area of about 1 million sq km and 150 Gt/a flux input is drained primarily by three glacier systems of which the Totten accounts for 40% of the flux from 55% of the area; the Vanderford 20% from 15%; and the Scott/Denman 20% from 20%. (Auth.)

34-2819
Results from the I.A.G.P. flow-line study inland of Casey, Wilkes Land, Antarctica.
Budd, W.F., et al, *Journal of glaciology*, 1979, 24(90), p.89-101, In English with French and German summaries. 28 refs.
Young, N.W.
Ice sheets, Flow rate, Ice cover thickness, Ice mechanics, Antarctica—Wilkes Land.
In order to determine accurate velocities of the sheet in the interior of Antarctica, approximately along a flow line, a detailed trilateration net was established in 1973 from the summit of Law Dome (100 km inland) to about 250 km south near the 2,00 m contour. The net consisted of a double line of markers approximately 10 km apart with all sides and diagonals of the quadrilaterals measured with tellurometers. In addition, satellite doppler survey positions and astronomical azimuths were determined at about 50 km intervals to control the net on the large scale. Other measurements carried out en route included continuous barometric levelling, radio echo-sounding, gravimetry, accumulation, and surface sampling. The route was close to an earlier traverse route which reached Vostok in 1962 and along which other data, including snow-surface temperatures and temperature-depth gradients, were determined. The trilateration net was re-surveyed in 1975, allowing velocities and strain-rates to be determined. The results indicate that the ice sheet is close to balance in this region. Therefore, the measured velocities were used together with "balance velocities", further inland, to carry out a modelling study of a flow line, to derive particle trajectories, ages, temperature profiles, and "dynamics velocities", from a flow law. The results provide further insight into the dynamics and flow properties of the ice sheet. (Auth.)

34-2820
Ice flow along an I.A.G.P. flow line and interpretation of data from an ice core in Terre Adélie, Antarctica.
Raynaud, D., et al, *Journal of glaciology*, 1979, 24(90), p.103-115, In English with French and German summaries. 24 refs.
Lorius, C., Budd, W.F., Young, N.W.
Ice sheets, Ice cores, Drill core analysis, Climatic changes, Antarctica—Adélie Coast.
An ice core has been obtained to the bedrock about 300 m deep in Terre Adélie 5 km inland from the coast. Stable isotopes and gas content have been measured over the length of the core. The results have been interpreted in terms of the temperature and elevation of origin of the ice further inland on the ice sheet from the data obtained along an 800 km traverse towards Dome "C", and from Dome "C", at an elevation of about 3,200 m. The flow of the ice from Dome "C" to the coast has been modelled to determine the ages and particle trajectories of the ice for present conditions. It has been found that the upper isotope and gas-content values in the core can be matched with the present regime, using a base for ice flow above the present bed which is suggested by moraine in the ice core. The ice in the layer from the 200 m depth, where the age is apparently more than 5,000 years, to the 250 m depth, appears to have originated from conditions which differ substantially from those existing on the present inland ice-sheet surface. The results give an indication of a colder climate and greater ice-sheet thickness in the past. (Auth.)

34-2821
Ice-sheet flow properties derived from bore-hole shear measurements combined with ice-core studies.
Russell-Head, D.S., et al, *Journal of glaciology*, 1979, 24(90), p.117-130, In English with French and German summaries. 28 refs.
Budd, W.F.
Ice sheets, Ice mechanics, Ice structure, Ice deformation, Antarctica—Law Dome.
Samples of a Law Dome ice core were subjected to simple shear at temperatures and deviatoric stresses which match the *in situ* conditions of the ice sheet. Similar studies of randomly-oriented laboratory-made polycrystalline ice were undertaken. Long-term tests, lasting for up to two years, were required to determine minimum strain-rates. The flow law for the anisotropic ice was thus determined as a function of that for the isotrpoic ice together with a measure of c-axis fabric strength perpendicular to the shear plane. Core studies indicate that the upper part of the ice sheet has a polycrystalline structure appropriate to the surface longitudinal stress. Deeper in the core a strong concentration of near-vertical c-axes develops. Ice having very large crystals with multiple maxima fabrics was found in the lower quarter of the ice thickness. Shear measurements in the bore hole indicate the existence of high strain-rates in the zone of vertical c-axes, and of lower shear-rates below that level. The low values of shear-rates in the basal region region cannot be explained in terms of crystallographic changes alone, and therefore it is inferred that the shear stress decreases in this layer—a result which also provides a possible explanation for the development of the observed basal crystal structure. (Auth.)

34-2822
Calculations of velocity and temperature in a polar glacier using the finite-element method.
Hooke, R.L., et al, *Journal of glaciology*, 1979, 24(90), p.131-146, In English with French and German summaries. 24 refs.
Raymond, C.F., Hotchkiss, R.L., Gustafson, R.J.
Ice sheets, Ice mechanics, Flow measurement, Ice temperature.

34-2823
Relationship of ultrasonic velocities to c-axis fabrics and relaxation characteristics of ice cores from Byrd Station, Antarctica.
Gow, A.J., et al, *Journal of glaciology*, 1979, 24(90), MP 1282, p.147-153, In English with French and German summaries. 12 refs.
Kohnen, H.
Ice sheets, Ice mechanics, Drill core analysis, Relaxation (mechanics), Ultrasonic tests, Antarctica—Byrd Station.
Deep cores from Byrd Station were used to calibrate an ultrasonic technique of evaluating crystal anisotropy in the antarctic ice sheet. Velocities measured parallel and perpendicular to the vertical axis of the cores yielded data in excellent agreement with the observed c-axis fabric profile and with the *in-situ* P-wave velocity profile measured parallel to the bore-hole axis by Bentley. Velocity differences in excess of 140 m/s for cores from below 1,300 m attest to the tight clustering of c axes of

crystals about the vertical especially in the zone 1,300-1,800 m. A small but significant decline in vertical velocity with ageing of the core, as deduced from Bentley's down-hole data, is attributed to the formation of oriented cracks that occur in the ice cores as they relax from environmental stresses. This investigation of cores from the 2,164 m thick ice sheet at Byrd Station establishes the ultrasonic technique as a viable method of monitoring relaxation characteristics of drilled cores and for determining the gross trends of c axis orientation in ice sheets. The Byrd Station data, in conjunction with Barkov's investigation of deep cores from Vostok, East Antarctica, also indicate that crystal anisotropy in the antarctic ice sheet is dominated by a clustering of c-axis about a vertical symmetry axis. (Auth.)

34-2824

Margin of the Greenland ice sheet at Isua.

Colbeck, S.C., et al, *Journal of glaciology*, 1979, 24(90), MP 1281, p.155-165, In English with French and German summaries. 7 refs.

Gow, A.J.

Ice sheets, Ice edge, Drill core analysis, Ice structure.

Field studies at a particular place at the margin of the Greenland ice sheet have provided information about the ice sheet. Ice temperatures were measured in five drill holes, two of which reached the unfrozen area of basal melting. Surface water entered these two bore holes, reaching the base in one, but remaining 59 m above the base in the other. The existence of this water conduit or fracture at 240 m depth, the calculated temperature profiles, and the local bedrock configuration suggest an area of stationary ice overridden by the ice sheet. This situation suggests creep rupture at depth in the ice sheet. Ice-fabric analysis made above 240 m depth shows patterns similar to fabrics elsewhere near the margin in zones of low deviatoric stress. Unfortunately, no cores were obtained below that depth where stationary ice may exist.

34-2825

Dynamics of marine ice sheets.

Thomas, R.H., *Journal of glaciology*, 1979, 24(90), p.167-177, In English with French and German summaries. 22 refs.

Ice sheets, Dynamic properties, Ice shelves, Mass balance.

Marine ice sheets rest on land that, for the most part, is below sea-level. At the grounding line there is a transition from ice-sheet dynamics to ice-shelf dynamics, and the creep-thinning rate in this region is very sensitive to sea depth, rising sea-level causes increased thinning-rates and grounding-line retreat, but falling sea-level has the reverse effect. If the bedrock slopes down towards the centre of the ice sheet, there may be only two stable modes: a freely-floating ice shelf or a marine ice sheet that extends to the edge of the continental shelf. The only current example of marine ice sheets is the West Antarctic ice sheet. This is buttressed by the Ross and Ronne Ice Shelves, and if climatic warming were to prohibit the existence of these ice shelves, then the ice sheet would collapse. Field observations suggest that, at present, the ice sheet may be advancing into parts of the Ross Ice Shelf. Such advance, however, would not ensure the security of the ice sheet since ice streams that drain to the north appear to flow directly into the sea with little or no ice shelf to buttress them. If these ice streams do not flow over a sufficiently high bedrock sill, then they provide the most likely avenues for ice-sheet retreat. (Auth. mod.)

34-2826

Effect of crystal size and dispersed-solid inclusions on the activation energy for creep of ice.

Baker, R.W., et al, *Journal of glaciology*, 1979, 24(90), p.179-194, In English with French and German summaries. 41 refs.

Gerberich, W.W.

Ice crystal size, Ice creep, Temperature effects.

34-2827

Role of shear heating in the dynamics of large ice masses.

Yuen, D.A., et al, *Journal of glaciology*, 1979, 24(90), p.195-212, In English with French and German summaries. 25 refs.

Schubert, G.

Ice sheets, Ice creep, Dynamic properties, Shear stress, Heating, Ice deformation.

34-2828

Catastrophe model of the paleoclimate.

MacAyeal, D.R., *Journal of glaciology*, 1979, 24(90), p.245-257, In English with French and Russian summaries. 22 refs.

Ice sheets, Dynamic properties, Climatic changes, Ice models.

34-2829

Formation, flow, and disintegration of ice shelves.

Robin, G. de Q., *Journal of glaciology*, 1979, 24(90), p.259-271, In English with French and German summaries. 33 refs.

Ice shelves, Ice formation, Ice creep, Ocean currents.

Ice shelves may develop either by continued thickening of sea ice that is held fast to the shore, or by the seaward extension of inland ice. For both processes, as well as for an understanding of ablation and of accumulation at the bottom surface of ice shelves, we need to understand melting and freezing processes in relation to salinity, temperature, and pressure. Consideration of these factors shows that basal melting beneath the thicker parts of ice shelves is much greater than is generally appreciated. This could be sufficient to bring the estimated mass balance of Antarctica into approximate equilibrium. It appears that most antarctic ice shelves are dependent on the supply of inland ice for their continued existence. However, the thick layer of sea ice beneath the Amery Ice Shelf is readily explained in terms of sub-ice water circulation. Transport of heat and mass by water motion beneath ice shelves has the potential to change ice thicknesses by similar amounts to that caused by internal deformation of the ice shelf. Bottom freezing due to thermal conduction throughout the ice shelf is of minor importance. (Auth.)

34-2830

Ice shelves: a review.

Thomas, R.H., *Journal of glaciology*, 1979, 24(90), p.273-286, In English with French and German summaries. 46 refs.

Ice sheets, Ice shelves, Calving.

Ice shelves form where ice flows off the antarctic ice sheet onto the sea to produce rather flat slabs of floating ice which, for the theoretician, are the simplest of all large masses. Boundary conditions are well defined, conditions change very slowly over distances that are large compared with ice thickness, and horizontal velocities are independent of depth. Unconfined ice shelves can be used as giant creep machines to investigate the ice flow law at low stresses. Further inland, where movement is hampered by obstructions such as grounded ice rises and by shear between the ice shelf and its sides, the ice shelf transmits a back-pressure which tends to restrict drainage from the ice sheets that feed it. Wastage from ice shelves is principally by calving and by bottom melting. There has been no direct measurement of bottom-melting rates, but indirect evidence suggests that, near the seaward edges of ice shelves, bottom-melting rates may exceed one meter per year, with significant melting within about 100 km of the ice front. Further inland there may be bottom freezing, and analysis of cores taken from the Amery Ice Shelf indicate that bottom-freezing rates average 0.5 m/a over a distance of 200 km. Such high freezing-rates are probably exceptional, and, beneath the Ross Ice Shelf, freezing appears to be insignificant even at a distance of 400 km from the ice front. (Auth. mod.)

34-2831

Ice-thickness patterns and the dynamics of the Ross Ice Shelf, Antarctica.

Bentley, C.R., et al, *Journal of glaciology*, 1979, 24(90), p.287-294, In English with French and German summaries. 11 refs.

Clough, J.W., Jezek, K.C., Shabtaie, S.

Ice shelves, Ice cover thickness, Flow measurement, Antarctica—Ross Ice Shelf.

As part of the Ross Ice Shelf Geophysical and Glaciological Survey, a detailed map of ice thickness has been produced from airborne radar measurements closely tied to the network of survey stations on the ice-shelf surface. The map, drawn with a 20 m contour interval, reveals a highly complex pattern of thickness variations reflecting presumably, at least in part, complex ice-shelf dynamics. Many features of the thickness variation pattern appear to be associated with zones of grounded ice, but not all. Features of interest include many ice thickness minima, with closures up to 120 m, a narrow, greatly elongated ridge-trough system 450 km or more in length; a few ice thickness maxima, steep regional gradients of 10 m/km in freely floating ice; highly contorted contours suggesting a large-scale "turbulence", and at least two remarkable step-like changes in ice thickness. The irregularity of many of these features suggests dynamic non-equilibrium, i.e., the existence of transients in the dynamic system, so that the ice shelf as a whole suggests a state of rather rapid change. Flow-bands constructed on the basis of the strengths of the echo from the ice-water interface clearly delineate the outflow from the main East Antarctic outlet glaciers in the grid eastern part of the shelf. (Auth. mod.)

34-2832

Dynamics of the Ross Ice Shelf revealed by radio echo-sounding.

Neal, C.S., *Journal of glaciology*, 1979, 24(90), p.295-307, In English with French and German summaries. 19 refs.

Ice shelves, Dynamic properties, Radio echo soundings, Antarctica—Ross Ice Shelf.

Radio-echo data have yielded information on the dynamics of the Ross Ice Shelf. Distinctive features present on the radio-echo records have been used to delineate several flow lines on the ice shelf. Measurement of the power returned from the ice-water interface has revealed regional variations in the r.f. dielectric loss of Ross Ice Shelf ice. These variations are used to indicate zones of bottom melting and freezing. (Auth.)

34-2833

Lateral density differences from seismic measurements at a site on the Ross Ice Shelf, Antarctica.

Kirchner, J.F., et al, *Journal of glaciology*, 1979, 24(90), p.309-312, In English with French and German summaries. 6 refs.

Bentley, C.R., Robertson, J.D.

Seismic surveys, Ice shelves, Antarctica—Ross Ice Shelf.

Seismic compressional-wave data from short refraction shooting carried out during the 1974-75 and 1976-77 seasons at J-9, the site of the Ross Ice Shelf Drilling Project, have been compared. Significant dissimilarities were found to exist between the two sets of data. The measurements were made at locations about 2 km apart, with three unreversed profiles 60 deg apart recorded during the 1976-77 season and one unreversed profile during the 1974-75 season. The resulting velocity-depth profiles, and hence the derived density-depth profiles, differ by as much as 8%. The density difference is believed to be due to the passage of the ice through the high-stress system associated with the interaction between Ice Stream B, flowing in from the West Antarctic ice sheet, and the Ross Ice Shelf. A reversed refraction profile carried out at station BC about 30 km upstream shows evidence of dipping layers that may be similarly caused. (Auth. mod.)

34-2834

Seismic short-refraction studies on the Ross Ice Shelf, Antarctica.

Kirchner, J.F., et al, *Journal of glaciology*, 1979, 24(90), p.313-319, In English with French and German summaries. 15 refs.

Bentley, C.R.

Seismic surveys, Ice shelves, Antarctica—Ross Ice Shelf.

Seismic short-refraction studies were carried out at five stations on the Ross Ice Shelf during the 1976-77 summer season as part of the comprehensive Ross Ice Shelf Geophysical and Glaciological Survey. Measurements of the velocities of compressional waves were made at each location. Compressional wave velocities were measured along more than one azimuth at three sites, and shear wave velocities (both components) at two. Travel-time curves were fitted to an exponential expression by means of a non-linear least-squares regression technique. The errors in the apparent velocities are estimated to be about 50 m/s at short distances, diminishing to about 10 m/s near the ends of the profiles. Compressional-wave velocities show only slight variations with azimuth and only over certain depth intervals, showing that constant-velocity surfaces are essentially horizontal. Shear-wave velocities, however, exhibit large variations according to azimuth and polarization, indicating that transverse isotropy is violated at least in the upper 30-40 m of the ice shelf. It is believed that the anisotropy is caused by structural details in the firn perhaps modified by preferred crystal orientation and that it may arise at least partly from anisotropic stresses in the ice shelf. (Auth.)

34-2835

Electromagnetic sounding of bottom crevasses on the Ross Ice Shelf, Antarctica.

Jezek, K.C., et al, *Journal of glaciology*, 1979, 24(90), p.321-330, In English with French and German summaries. 8 refs.

Bentley, C.R., Clough, J.W.

Electromagnetic prospecting, Crevasses, Bottom topography, Ice shelves, Antarctica—Ross Ice Shelf.

During the 1976-77 season of the Ross Ice Shelf Geophysical and Glaciological Survey, a series of vertical electromagnetic sounding profiles of subsurface features was completed at station J-9. The survey comprised three five-kilometer northwest-southeast profiles separated by one kilometer and six two-kilometer northeast-southwest profiles, and was carried out on the surface using 35 MHz and 50 MHz radar systems. Folded-dipole antennae were used and oriented to detect reflectors both along and perpendicular to the profile path. This was done to facilitate the interpretation of the data, which indicated a complex system of bottom crevasses. Measurements of the positions, heights, and shapes of these crevasses showed at least two sets of crevasses varying in both strike and size. The larger crevasses, about 120 m high and oriented more or less normal to the flow direction, are probably associated with the movement of ice stream B across the grounding line between the West Antarctic ice sheet and the Ross Ice Shelf. A satisfactory explanation for the secondary set of crevasses, about 60 m high and forming an angle of 60 deg with the first set, has not yet been found. (Auth.)

34-2836

Investigation of bottom mass-balance rates by electrical resistivity soundings on the Ross Ice Shelf, Antarctica.

Shabtaie, S., et al, *Journal of glaciology*, 1979, 24(90), p.331-343, In English with French and German summaries. 21 refs.

Bentley, C.R.

Ice shelves, Mass balance, Ice bottom surface, Ice temperature, Electrical resistivity, Antarctica—Ross Ice Shelf.

Electrical resistivity sounding, using the four-electrode Schlumberger array, has been carried out at 11 locations on the Ross Ice Shelf. The apparent resistivity curves generally show four characteristic zones. The first, at distances from 1 to 10 m, reflects the near-surface zone of seasonal temperature changes and inhomogeneities. The second zone, from 10 m to 100 m, reflects primarily the increasing density with depth in the upper 50 m of the ice shelf, modified, in some locations, by temperature variations. The third zone, from 100 m to a distance roughly equal to the ice thickness, is affected principally by the temperature gradient in the solid ice. In the fourth zone, at distances greater than approximately twice the ice thickness, the apparent resistivity usually decreases rapidly with distance, owing to the highly conductive sea-water beneath the ice shelf. At some stations associated with ice streams and outlet glaciers, however, an increase at large spacings indicates much more resistive basal ice. Using data from seven locations on the grid eastern half of the shelf that do not show obvious evidence of a basal resistive zone, including temperatures to 100 m at two of the sites, the mass-balance rate at the bottom of the ice is estimated to be within a few tenths of a meter per year of zero at distances between go and 530 km from the ice front, assuming steady-state condition over most of the ice shelf. (Auth. mod.)

34-2837
Dating of Ross Ice Shelf cores by chemical analysis.
Herron, M.M., et al, *Journal of glaciology*, 1979, 24(90), p.345-357, In English with French and German summaries. 34 refs.
Langway, C.C., Jr.
Ice shelves, Ice cores, Chemical analysis, Ice dating, Antarctica—Ross Ice Shelf.
Seasonal variations in sodium concentrations have been measured on surface-pit snow samples and on firn and ice core samples from the Ross Ice Shelf, Antarctica. The predominant source for the Na is sea salt, indicated by greater concentration levels at seaward sites. Small Al concentrations show that the input of continental dust is comparable to that at inland antarctic locations, and that dust contributes only a negligibly small fraction of the Na on the shelf. Maximum Na concentrations occur in the winter or early spring, as is the case for Greenland ice. The annual accumulation rate at J-9, determined by counting Na concentration peaks with depth, is 90 kg/sq m/yr, in agreement with rates determined radiometrically. Annual cycles in Na concentration are also detectable at depth in the J-9 ice core. It is suggested that Na concentration is a useful diagnostic criterion for distinguishing between East Antarctic ice, West Antarctic ice, and ice that fell as snow on the shelf itself. The transition between snow that is chemically characteristic of the ice-shelf regime to snow of an inland regime is expected to occur near the 500 m elevation contour. This position is up to 200 km inland of the grounding line. (Auth. mod.)

34-2838
Modeling sea-ice features and processes.
Rothrock, D.A., *Journal of glaciology*, 1979, 24(90), p.359-375, In English with French and German summaries. 69 refs.
Sea ice, Floating ice, Drift, Ice floes, Ice cover thickness, Models.

34-2839
Mechanical energy considerations in sea-ice dynamics.
Coon, M.D., et al, *Journal of glaciology*, 1979, 24(90), p.377-389, In English with French and German summaries. 15 refs.
Pritchard, R.S.
Sea ice, Dynamic properties, Mathematical models, Ice mechanics, Ice physics.

34-2840
Mass-balance aspects of Weddell Sea pack-ice.
Ackley, S.F., *Journal of glaciology*, 1979, 24(90), MP 1286, p.391-405, In English with French and German summaries. 20 refs.
Sea ice distribution, Mass balance, Ice deformation, Salinity, Weddell Sea.
The Weddell Sea pack ice undergoes several unique advance-retreat characteristics related to the clockwise transport in the Weddell Gyre, the physical setting for the pack ice, and the free boundary with the oceans to the north. From satellite-derived ice charts, the annual cycle of the pack ice advance and retreat is depicted. The Weddell pack advance is characterized by a strong east-moving component as well as the north advance seen in other regions such as East Antarctica. Physical characteristics of the pack ice at the summer minimum ice edge are presented. Indications are that deformation is a significant component of the ice accumulation, deformed ice accounting for c. 15 to 20% of the area covered in the year-round pack. Ablation characteristics are inferred from observations made during field work and from satellite imagery. These observations indicate that surface-melt ablation typically seen on Arctic pack is not seen on the Weddell pack inside the summer edge. Using the physical-property data and transport inferred from ship and iceberg drifts, a new annual ice accumulation >3 m is inferred over the continental shelf in the South compared to <2 m previously estimated. The implication is that salt flux into the ocean over the shelf may be significantly larger, thereby increasing the production of Western Shelf Water, a component of Antarctic Bottom Water. (Auth.)

34-2841
Simple model to calculate the compactness of ice floes.
Neralla, V.R., et al, *Journal of glaciology*, 1979, 24(90), p.407-414, In English with French and German summaries. 12 refs
Liu, W.S.
Sea ice distribution, Ice floes, Ice models, Ice forecasting.

34-2842
Satellite studies of fresh-water ice movement on Lake Erie.
Wiesnet, D.R., *Journal of glaciology*, 1979, 24(90), p.415-426, In English with French and German summaries. 11 refs.
Lake ice, Drift, Remote sensing, Spaceborne photography, Wind factors.

34-2843
Stability of glaciers and ice sheets against flow perturbations.
Thompson, D.E., *Journal of glaciology*, 1979, 24(90), p.427-441, In English with French and German summaries. 26 refs.
Glacier flow, Ice sheets, Stability.

34-2844
Use of a rational model in the mathematical analysis of a polythermal glacier.
Fowler, A.C., *Journal of glaciology*, 1979, 24(90), p.443-456, In English with French and German summaries. 17 refs.
Boundary value problems, Glacier flow, Mathematical models.

34-2845
Deduction of glacier flow from the distribution of elongated bubbles.
Nakawo, M., *Journal of glaciology*, 1979, 24(90), p.457-467, In English with French and German summaries. 13 refs.
Glacier flow, Bubbles, Strain tests.

34-2846
Calculating combined end- and side-lap welds at low temperature. [O raschete kombinirovannykh svarnykh soedinenii s lobovymi i flangovymi shvami pri nizkikh temperaturakh],
Semenovich, M.D., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1979, No.7, p.17-22, In Russian. 8 refs.
Welding, Joints (junctions), Thermal stresses, Analysis (mathematics).

34-2847
Stresses in triple layer wall panels at different rates of temperature drop along thickness. [Issledovaniia napriazhenii v trekhsloinoi stenovoi paneli pri razlichnykh temperaturnykh perepadakh po ee tolshchine],
Albaut, G.N., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1979, No.7, p.118-123, In Russian. 8 refs.
Baryshnikov, V.N., Khva, K.E.
Buildings, Walls, Panels, Thermal stresses.

34-2848
Effect of petroleum products on Arctic snow-ice cover. [Vozdeistvie nefteproduktov na snezhno-ledianoi pokrov Arktiki],
Izmailov, V.V., *Geograficheskoe obshchestvo SSSR. Izvestiia*, Mar.-Apr. 1980, 112(2), p.147-152, In Russian. 4 refs.
Pollution, Snow cover, Ice cover, Polar regions, Petroleum products.

34-2849
Transport engineers and the economic development of West Siberia. [Transportnye stroiteli kompleksnomu osvoeniiu Zapadnoi Sibiri],
Melkonov, S.S., *Transportnoe stroitel'stvo*, Jan. 1980, No.1, p.3-6, In Russian.
Railroads, Permafrost beneath structures, Swamps, Roads, Cold weather construction.

34-2850
Slit blasting technique of trenching for the Baykal Amur railroad. [Shchelevzryvnye transhei na BAMe],
Anisimov, D.I., et al, *Transportnoe stroitel'stvo*, Jan. 1980, No.1, p.6-8, In Russian.
Potapova, L.G., Balbachan, I.P.
Trenching, Blasting, Permafrost.

34-2851
Instruments for determining soil density and moisture content. [Effektivnye pribory dlia opredeleniia vlazhnosti i plotnosti gruntov],
Gorelik, A.M., et al, *Transportnoe stroitel'stvo*, Jan. 1980, No.1, p.8-9, In Russian.
Druzhinin, M.K.
Soil freezing, Density (mass/volume), Soil water, Measuring instruments.

34-2852
Bridge crossing the Irtysh River at Omsk. [Mostovoi perekhod cherez Irtysh v Omske],
Vinogradov, K.P., et al, *Transportnoe stroitel'stvo*, Jan. 1980, No.1, p.9-11, In Russian.
Tsyganov, S.V.
Bridges, Design.

34-2853
Intermediate columnar bridge piers of the Baykal Amur railroad. [O primenenii promezhutochnykh stolbchatykh opor na mostakh BAMa],
Ryzhenko, A.P., *Transportnoe stroitel'stvo*, Jan. 1980, No.1, p.11-12, In Russian. 2 refs.
Bridges, Permafrost beneath structures, Piers, Concrete structures, Baykal Amur railroad.

34-2854
Heading machine complex for tunneling. [Shchitovoi prokhodcheskii kompleks dlia sooruzheniia tonnelei sposobom prodavlivaniia],
Bobrovskii, L.M., et al, *Transportnoe stroitel'stvo*, Jan. 1980, No.1, p.12-14, In Russian.
Strel'tsov, V.V.
Tunneling (excavation), Construction equipment, Baykal Amur railroad.

34-2855
Sprayed concrete in tunnel construction in the Baykal Amur railroad area. [Primenenie nabryzgbetona pri stroitel'stve tonnelei BAMa],
Golitsynskii, D.M., *Transportnoe stroitel'stvo*, Jan. 1980, No.1, p.14-15, In Russian. 2 refs.
Tunnels, Linings, Reinforced concretes, Winter concreting, Earthquakes, Baykal Amur railroad.

34-2856
Construction of roadbeds on hummocky peats. [Vozvedenie zemlianogo polotna na bugristykh torfianikakh],
Plotskii, A.S., et al, *Avtomobil'nye dorogi*, Dec. 1979, No.12, p.3-4, In Russian. 2 refs.
Golenko, N.A., Naumov, V.G.
Roadbeds, Peat, Swamps, Hummocks, Frost heave, Roads, Design.

34-2857
Increasing the effectiveness of snow removal patrols on roads (Discussion). [Povysit' effektivnost' patrul'noi snegoochistki dorog (v poriadke obsuzhdeniia)],
Kungurtsev, A.A., et al, *Avtomobil'nye dorogi*, Dec. 1979, No.12, p.8-9, In Russian.
Ivanov, V.D.
Winter maintenance, Snow removal, Road maintenance.

34-2858
Optimal versions of road construction stages in Yakutia (Discussion). [Optimal'nye varianty stadiinogo stroitel'stva avtomobil'nykh dorog v IAkutii (v poriadke obsuzhdeniia)],
Zhukov, E.A., *Avtomobil'nye dorogi*, Dec. 1979, No.12, p.17-18, In Russian. 8 refs.
Roads, Permafrost beneath structures, Snow roads, Ice roads.

34-2859
Deformation of embankments built on permafrost. [Deformativnye svoistva nasypei na vechnomerzlykh gruntakh],
Ivanov, V.N., *Avtomobil'nye dorogi*, Dec. 1979, No.12, p.20-22, In Russian. 2 refs.
Embankments, Permafrost beneath structures, Roads, Design.

34-2860
Construction-related oil spills along Trans-Alaska Pipeline.
Kavanagh, N., et al, Joint State/Federal Fish and Wildlife Advisory Team. Special report No.15, Anchorage, Alaska, 1977, 16p., 16 refs.
Townsend, A.
Oil spills, Hot oil lines, Countermeasures, Environmental impact.

34-2861
Ultrasonic study in supercooled water to -26C. [Etude ultrasonore de l'eau en surfusion jusqu'à -26C],
Bacri, J.C., et al, *Journal de physique. Lettres*, Aug. 15, 1979, 40(16), p.L/403-L/405, In French with English summary. 10 refs.
Rajaonarison, R.
Supercooling, Water, Ultrasonic tests, Attenuation, Velocity, Temperature effects, Acoustics.

34-2862
Winter service and road maintenance. [Winterdienst und Strassenerhaltung],
Suter, K., *Strasse und Verkehr*, Mar. 1980, 66(3), p.77, In German.
Road maintenance, Winter maintenance, Chemical ice prevention, Salting.

34-2863
Instructions for the performance and acceptance of jobs concerning the shield technique of building collecting-tunnels in cities and industrial enterprises. [Ukazaniia po proizvodstvu i priemke rabot po stroitel'stvu v gorodakh i na promyshlennykh predpriiatiiakh kollektornykh tonnelei, sooruzhaemykh sposobom shchitovoi prokhodki],
Russia. Gosudarstvennyi komitet po delam stroitel'stva, Moscow, Stroiizdat, 1975, 38p., SN 322-74, In Russian with English table of contents enclosed.
Tunneling, Mining, Shaft sinking, Artificial freezing, Concrete structures, Supports, Formwork (construction).

34-2864
Instructions for designing underground low temperature storage for liquefied hydrocarbon gases. [Instruktsiia po proektirovaniiu podzemnykh nizkotemperaturnykh khranilishch szhizhennykh uglevodorodnykh gazov].
Russia. Gosudarstvennyi komitet po delam stroitel'stva, Moscow, Stroiizdat, 1977, 29p., SN 486-76. In Russian with English table contents enclosed.
Underground storage, Liquefied gases, Permafrost.

34-2865
Roads. Rules of construction and acceptance of jobs. Approval for operation. [Avtomobil'nye dorogi. Pravila proizvodstva i priemki rabot. Priemka v ekspluatatsiiu].
Russia. Gosudarstvennyi komitet po delam stroitel'stva. Stroitel'nye normy i pravila. Chast' III, Razdel D, Glava 5 (Building standards and regulations (U.S.S.R.). Part III. Section D. Chapter 5), Moscow, Stroiizdat, 1975, 87p., SNiP III-D.5-73. In Russian with English table of contents enclosed.
Roads, Roadbeds, Permafrost beneath structures, Cold weather construction, Earthwork, Excavation, Saline soils, Pavements.

34-2866
Construction of underwater crossings of main pipelines. [Sooruzhenie podvodnykh perekhodov pri stroitel'stve magistral'nykh truboprovodov].
Russia. Glavnoe upravlenie gazovoi promyshlennosti. Vedomstvennye normy i rastsenki na stroitel'nye, montazhnye i remontno-stroitel'nye raboty (Statement of norms and evaluations for construction, installation and repair jobs), Moscow, Transport, 1970, 36p., V-35. In Russian with English table of contents enclosed.
Hydraulic structures, Pipelines, River crossings, Trenching, Pipe laying, River ice, Snow removal, Ice cutting, Polynyas, Dredging.

34-2867
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Permafrost distribution, Permafrost structure, Lacustrine deposits, Swamps, Peat, Cryogenic textures, USSR—Zeya River.

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Pingos, Ice composition, Chemical composition, Ice growth.

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Shores, Rock temperature, Vegetation factors, Permafrost beneath structures, Ground thawing, USSR—Baykal Lake.

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Glaciation, Pleistocene, Permafrost distribution, USSR—Verkhoyansk, USSR—Kolyma.

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34-2993
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34-2994
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34-3014
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34-3035
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Cryogenic soils, Vegetation, Plant ecology, Tundra, Deserts, Arctic landscapes, USSR—Chelyuskin Cape.

34-3037
Musci and Hepaticae of Cape Chelyuskin. [Listostebel'nye i pechenochnye mkhi mysa Cheliuskin],
Blagodatskikh, L.S., et al, Arkticheskie tundry i poliarnye pustyni Taimyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.54-60, In Russian. 7 refs.
Zhukova, A.L., Matveeva, N.V.
Deserts, Tundra, Mosses, Arctic landscapes.

34-3038
Ground lichens of Cape Chelyuskin. [Napochvennye lishaĭniki mysa Cheliuskin],
Piin, T.Kh., Arkticheskie tundry i poliarnye pustyni Taimyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.61-73, In Russian. 8 refs.
Deserts, Tundra, Lichens, Arctic landscapes.

34-3039
Some chemical properties of Cape Chelyuskin soils. [Nekotorye khimicheskie svoĭstva pochv mysa Cheliuskin],
Chugunova, M.V., Arkticheskie tundry i poliarnye pustyni Taimyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.74-77, In Russian. 11 refs.
Cryogenic soils, Soil composition, Soil chemistry, Arctic landscapes, USSR—Chelyuskin Cape.

34-3040
Vegetation in the vicinity of Marii Pronchishchevoy Bay (Northeastern Taymyr Peninsula). [Flora i rastitel'nost' okrestnosteĭ bukhty Marii Pronchishchevoĭ (severo-vostochnyĭ Taimyr)],
Matveeva, N.V., Arkticheskie tundry i poliarnye pustyni Taimyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.78-109, In Russian. 24 refs.
Deserts, Tundra, Landscape types, Plant ecology, Alpine landscapes, Biomass, Arctic landscapes, USSR—Taymyr Peninsula.

34-3041
Microflora of Arctic tundra soils in the northeastern part of the Taymyr Peninsula. [K kharakteristike mikroflory pochv arkticheskikh tundr severo-vostochnoi chasti Taimyra].
Parinkina, O.M., Arkticheskie tundry i poliarnye pustyni Taimyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.110-117, In Russian. 4 refs.
Tundra, Cryogenic soils, Soil microbiology, Arctic landscapes.

34-3042
Vegetation on specific thermokarst relief in the vicinity of Marii Pronchishchevoy Bay (Northeastern Taymyr Peninsula). [Rastitel'nost' baidzharakhov v okrestnostiakh bukhty Marii Pronchishchevoi (severo-vostochnyi Taimyr)].
Samina, O.I., Arkticheskie tundry i poliarnye pustyni Taimyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.118-132, In Russian. 7 refs.
Thermokarst, Permafrost structure, Ice veins, Cryogenic soils, Vegetation, Arctic landscapes.

34-3043
Musci and Hepaticae in the vicinity of Marii Pronchishchevoy Bay (Northeastern Taymyr Peninsula). [K flore listostebel'nykh i pechenochnykh mkhov okrestnostei bukhty Marii Pronchishchevoi (severovostochnyi Taimyr)].
Blagodatskikh, L.S., et al, Arkticheskie tundry i poliarnye pustyni Taimyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.133-139, In Russian. 9 refs.
Zhukova, A.L., Matveeva, N.V.
Deserts, Tundra, Mosses, Arctic landscapes.

34-3044
Ground lichens in the vicinity of Marii Pronchishchevoy Bay (Northeastern Taymyr Peninsula). [Napochvennye lishainiki okrestnostei bukhty Marii Pronchishchevoi (Severo-vostochnyi Taimyr)].
Piin, T.Kh., Arkticheskie tundry i poliarnye pustyni Taimyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.140-143, In Russian. 1 ref.
Lichens, Plant ecology, Ecosystems, Arctic landscapes.

34-3045
Latitudinal variations in the proportions of living vascular plants in Taymyr Peninsula. [Shirotnye izmeneniia sootnoshenii zhiznennykh form sosudistykh rastenii na Taimyre].
Polozova, T.G., Arkticheskie tundry i poliarnye pustyni Taimyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.154-159, In Russian. 6 refs.
Deserts, Tundra, Cryogenic soils, Vegetation, Plant ecology, Arctic landscapes.

34-3046
Productivity of Taymyr soil microflora as a criterion of biologic activity. [Produktivnost' mikroflory pochv Taimyra kak kriterii ikh biologicheskoi aktivnosti].
Parinkina, O.M., Arkticheskie tundry i poliarnye pustyni Taimyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.160-165, In Russian. 12 refs.
Tundra, Soil formation, Soil microbiology, Bacteria, Arctic landscapes.

34-3047
Regularities governing zonal distribution of communities in Taymyr Peninsula. [Zakonomernosti zonal'nogo raspredeleniia soobshchestv na Taimyre].
Chernov, IU.I., et al, Arkticheskie tundry i poliarnye pustyni Taimyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.166-200, In Russian. 56 refs.
Matveeva, N.V.
Deserts, Tundra, Forest tundra, Animals, Plants (botany), Plant ecology, Cryogenic soils, Arctic landscapes, USSR—Taymyr Peninsula.

34-3048
Environmental assessment of the Alaskan continental shelf, Vol.5, Receptors—Microbiology; Contaminant baselines. Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct 1979, 698p., Principal investigators' annual reports for the year ending March 1979. Numerous refs. passim.
Oceanography, Microbiology, Marine biology, Oil spills, Water pollution, Bottom sediment, Sea water, Environmental impact, Hydrocarbons.

34-3049
Environmental assessment of the Alaskan continental shelf, Vol.6, Effects. Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct 1979, 664p., Principal investigators' annual reports for the year ending March 1979. Numerous refs. passim.
Oil spills, Marine biology, Environmental impact, Sea water, Ecology, Oceanography, Animals, Water pollution.

34-3050
Environmental assessment of the Alaskan continental shelf, Vol.7, Transport. Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct. 1979, 560p., Principal investigators' annual reports for the year ending March 1979. Numerous refs. passim. For selected report see 34-3051.
Oceanography, Oil spills, Sea ice, Ice mechanics, Ocean currents, Liquid solid interfaces, Marine meteorology, Tides, Data processing.

34-3051
Dynamics of near-shore ice.
Kovacs, A., et al, MP 1291, Environmental assessment of the Alaskan continental shelf, Vol. 7, Transport. Principal investigators' annual reports for the year ending March 1979, Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct 1979, p.181-207, 2 refs.
Weeks, W.F.
Ice mechanics, Sea ice, Ice cover thickness, Ice structure, Ice crystals, Pressure ridges, Remote sensing, Fast ice, Pack ice.

34-3052
Environmental assessment of the Alaskan continental shelf, Vol.8, Transport. Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct. 1979, 588p., Principal investigators' annual reports for the year ending March 1979. Numerous refs. passim. For selected reports see 34-3053 and 34-3054.
Oceanography, Hydrodynamics, Oil spills, Sea ice distribution, Subglacial observations, Petroleum transportation, Ice mechanics, Fast ice, Meteorological factors.

34-3053
Oil pooling under sea ice.
Kovacs, A., MP 1289, Environmental assessment of the Alaskan continental shelf, Vol.8, Transport. Principal investigators' annual reports for the year ending March 1979, Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct. 1979, p.310-323, 3 refs.
Oil spills, Sea ice, Ice electrical properties, Bottom ice, Fast ice, Subglacial observations, Ocean currents, Anisotropy, Remote sensing, Echo sounding, Electromagnetic properties.
The object of the CRREL study is to: (a) determine the cause of the significant relief which exists under the fast ice, (b) measure the variations in the relief under fast ice, using electromagnetic echo sounding, (c) determine if the under-ice relief is a series of individual pockets or consists of long rills, (d) estimate the quantity of oil which could pool up in the under-ice depressions should oil be released under the ice cover (e) use impulse radar to study the electromagnetic properties and anisotropy of sea ice. Initial results from using a polarized radar antenna in the air from the NOAA helicopter indicate that the c-axis anisotropy can be determined from the air. Because this anisotropy is related to current direction, it should be possible to measure, from an airborne platform, the current direction at the ice water interface.

34-3054
Anisotropic properties of sea ice in the 50-150 MHz range.
Kovacs, A., et al, Environmental assessment of the Alaskan continental shelf, Vol. 8, Transport. Principal investigators' annual reports for the year ending March 1979, Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct 1979, p.324-353, 4 refs.
Morey, R.M.
Sea ice, Ice electrical properties, Anisotropy, Ice crystal structure, Electromagnetic properties, Ocean currents, Remote sensing.
Results of impulse radar studies of sea ice near Prudhoe Bay, Alaska, show that where there is a preferred current direction under the ice cover the crystal structure of the ice becomes highly ordered. This includes a crystal structure with a preferred horizontal c-axis that is oriented parallel with the local current. The radar studies show that this structure behaves as an anisotropic dielectric. The result is that when electromagnetic energy is radiated from a dipole antenna in which the E-field is oriented perpendicular with the c-axis azimuth no bottom reflection is detected. It was also found that the frequency dispersion of anisotropic sea ice varies in the horizontal plane and is related to the average bulk brine volume of the ice. The bulk dielectric constant of the ice, as determined from impulse travel time, shows little correlation with the coefficient of anisotropy.

34-3055
Environmental assessment of the Alaskan continental shelf, Vol.9, Hazards. Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct. 1979, 682p., Principal investigators' annual reports for the year ending March 1979. Numerous refs. passim. For selected reports see 34-3056 and 34-3057.
Research projects, Sea ice, Subsea permafrost, Seismology, Ocean environments, Shoreline modification, Earthquakes.

34-3056
Delineation and engineering characteristics of permafrost beneath the Beaufort Sea.
Sellmann, P.V., et al, MP 1287, Environmental assessment of the Alaskan continental shelf, Vol. 9, Hazards. Principal investigators' annual reports for the year ending March 1979, Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct 1979, p.93-115, 19 refs.
Chamberlain, E., Arcone, S.A., Blouin, S.E., Delaney, A.J., Neave, K.G.
Subsea permafrost, Permafrost distribution, Bottom sediment, Boreholes, Temperature measurement, Engineering geology, Seismic surveys, Offshore drilling, Seasonal freeze thaw, Beaufort Sea.
The objective of CRREL's subsea permafrost program is to obtain information on the distribution and properties of permafrost beneath the Beaufort Sea. We are currently acquiring information on the distribution of ice-bonded permafrost from analysis of the velocity structure of commercial seismic records. This report summarizes the results of all studies to date, including engineering property analysis and preliminary interpretation of seismic data. Emphasis is placed on results that are relevant to offshore development of this region. Discussion of the CRREL drilling and laboratory program represents the most current interpretation of these data.

34-3057
Buried valleys as a possible determinant of the distribution of deeply buried permafrost on the continental shelf of the Beaufort Sea.
Hopkins, D.M., et al, MP 1288, Environmental assessment of the Alaskan continental shelf, Vol. 9, Hazards. Principal investigators' annual reports for the year ending March 1979, Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct. 1979, p.135-141, 15 refs.
Sellmann, P.V., Chamberlain, E., Lewellen, R.E., Robinson, S.W.
Subsea permafrost, Permafrost distribution, Boreholes, Bottom sediment, River basins, Valleys, Beaufort Sea.

34-3058
Environmental assessment of the Alaskan continental shelf, Vol.10, Hazards, Data management. Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct. 1979, 517p., Principal investigators' annual reports for the year ending March 1979. Numerous refs. passim.
Subsea permafrost, Bottom sediment, Sediment transport, Erosion, Seismic surveys, Geomorphology, Environmental impact, Remote sensing, Logistics, Data processing.

34-3059
"NIPR-I," a new plankton sampler under sea ice.
Fukuchi, M., et al, *Plankton Society of Japan. Bulletin*, Dec. 1979, 26(2), p.104-109, 6 refs.
Tanimura, A., Hoshiai, T.
Samplers, Plankton, Sea ice.
A plankton sampler was devised to collect zooplankton under the sea ice. The sampler is composed of a cylindrical part (24 cm x 57.5 cm) and a conical plankton net (20 cm x 39 cm). A propeller and an electric motor which drives the propeller are installed inside the cylinder and the plankton net is attached at the posterior end of the cylinder. The plankters are taken into the sampler by a current caused by the rotating propeller and filtered by the plankton net. The sampler is not towed, but is operated as it is suspended horizontally at desired depths under the sea ice. The sampler is of simple structure, inexpensive, light enough for one-man operation. The usefulness of this sampler was shown by the field observations in the Lützow-Holm Bay, Antarctica, and Lake Saroma, Hokkaido, Japan. The problems to be solved for the quantitative investigations are also identified. This sampler is named "NIPR-I". (Auth.)

34-3060
Mystery flood solved.
Jackson, L.E., Jr., *Geos*, Summer 1979, p.2-4.
Mudflows, Subglacial drainage, Floods, Glacial lakes, Subglacial caves, Glacial hydrology, Glacier beds.

34-3061
Oil seep in the Arctic.
Mungall, C., *Geos*, Spring 1979, p.2-4.
Marine geology, Crude oil, Seepage.

34-3062
Drift ice features in the Caniapiscau. [Le glaciel du Caniapiscau].
Laverdière, C., et al, *Geos*, Spring 1979, p.9-11, In French with English summary. Also available in English.
Guimont, P.
Floating ice, Ice jams, Ice scoring, River ice.

34-3063
Deforestation of reservoirs. [Le déboisement dans les réservoirs].
Marcotte, H., et al, *Geos*, Spring 1979, p.15-17, In French with English summary. Also available in English.
Soucy, A.
Trees (plants), Decomposition, Flooding, Ice pressure, Water waves.

34-3064
Late Quaternary history and the formation of sediments in the marginal and inland seas. [Pozdnechetvertichnaia istoriia i sedimentogenez okrainnykh i vnutrennikh morei].
Gershanovich, D.E., ed, Moscow, Nauka, 1979, 212p., In Russian. For selected articles see 34-3065 through 34-3068. Refs. passim.
Subsea permafrost, Permafrost distribution, Permafrost thickness, Permafrost transformation, Bottom sediment, Sedimentation, Marine deposits, Sediment transport, Ice conditions, Paleoclimatology, Glacial deposits, Arctic Ocean.

34-3065
Structure of the Pliocene-Quaternary deposits of the Barents Sea bottom along the Rybachiy Island-Franz Joseph Land cross section. [Stroenie pliotsen-chetvertichnoi tolshchi dna Barentseva moria na razreze: poluostrov Rybachii-ostrova Zemlia Frantsa Iosifa].
Blazhchishin, A.I., et al, Pozdnechetvertichnaia istoriia i sedimentogenez okrainnykh i vnutrennikh morei (Late Quaternary history and the formation of sediments in the marginal and inland seas) edited by D.E. Gershanovich, Moscow, Nauka, 1979, p.13-19, In Russian. 17 refs.
Lin'kova, T.I., Kirillov, O.V., Shkatov, E.P.
Bottom sediment, Sedimentation, Marine deposits, Clays, Glacial deposits, Sediment transport, Arctic Ocean.

34-3066
Postglacial and Holocene paleogeography of the Barents Sea. [K paleogeografii Barentseva moria v pozdnelednikov'e i golotsene].
Kotenev, B.N., Pozdnechetvertichnaia istoriia i sedimentogenez okrainnykh i vnutrennikh morei (Late Quaternary history and the formation of sediments in the marginal and inland seas) edited by D.E. Gershanovich, Moscow, Nauka, 1979, p.20-28, In Russian. 18 refs.
Bottom sediment, Ice conditions, Paleoecology, Glacial deposits, Sedimentation, Marine sediments, Barents Sea.

34-3067
Evolution of late and postglacial sediment accumulation in offshore areas of the Barents and White seas. [Evoliutsiia osadkonakopleniia v pribrezhnykh raionakh Barentseva i Belogo morei v pozdne- i poslelednikovoe vremia].
Evzerov, V.IA., Pozdnechetvertichnaia istoriia i sedimentogenez okrainnykh i vnutrennikh morei (Late Quaternary history and the formation of sediments in the marginal and inland seas) edited by D.E. Gershanovich, Moscow, Nauka, 1979, p.29-33, In Russian. 11 refs.
Sedimentation, Ice conditions, Paleoclimatology, Marine sediments, Glacial deposits, Polar regions, Barents Sea.

34-3068
Cryolithozone of the Asiatic Arctic shelf. [Kriolitozona arkticheskogo shel'fa Azii].
Antipina, Z.N., et al, Pozdnechetvertichnaia istoriia i sedimentogenez okrainnykh i vnutrennikh morei (Late Quaternary history and the formation of sediments in the marginal and inland seas) edited by D.E. Gershanovich, Moscow, Nauka, 1979, p.183-189, In Russian. 12 refs.
Are, F.E., Volchenko, V.V., Molochushkin, E.N.
Subsea permafrost, Permafrost distribution, Frozen rock temperature, Permafrost thickness, Permafrost depth, Permafrost transformation.

34-3069
Heat and mass transfer in low temperature thermal insulation installations. [Teplomassoobmen v nizkotemperaturnykh teploizoliatsionnykh konstruktsiiakh].
Kaganer, M.G., Moscow, Energiia, 1979, 257p., In Russian with English table of contents enclosed. Refs. p.242-255.
Construction materials, Thermal insulation, Heat transfer, Mass transfer.

34-3070
Design of casing programs. [Proektirovanie konstruktsii skvazhin].
Bulatov, A.I., et al, Moscow, Nedra, 1979, 280p. (Pertinent p.85-91, 135-141), In Russian with abridged English table of contents enclosed. 142 refs.
Izmailov, L.B., Lebedev, O.A.
Petroleum industry, Wells, Drilling, Well casings, Design, Permafrost.

34-3071
Thermal abrasion of seashores. [Termoabraziia morskikh beregov].
Are, F.E., Moscow, Nauka, 1980, 159p., In Russian with English table of contents enclosed. Refs. p.147-158.
Shore erosion, Abrasion, Subsea permafrost, Permafrost distribution, Permafrost structure, Permafrost transformation, Polar regions, Marine geology, Bibliographies.

34-3072
Snow avalanches in Zailiyskiy and Dzungarskiy Alatau. [Snezhnye laviny Zailiiskogo i Dzhungarskogo Alatau].
Severskii, I.V., Alma-Ata, Nauka, 1978, 256p., In Russian with English table of contents enclosed. Refs p.246-255.
Avalanches, Snow cover distribution, Snow cover structure, Snow cover stability, Avalanche formation, Avalanche triggering, Avalanche forecasting, USSR—Zailiyskiy Alatau, USSR—Dzhungarskiy Alatau.

34-3073
Naleds and countermeasures. [Naledi i bor'ba s nimi].
Shushakov, E.V., Moscow, Transport, 1979, 64p., In Russian with English table of contents enclosed. 5 refs.
Naleds, Culverts, Permafrost hydrology, Bridges, Permafrost beneath structures, Icing rate, Ice loads, Baykal Amur railroad, Classifications, Railroad tracks.

34-3074
Peculiarities of land reclamation in West Siberia. [Osobennosti melioratsii zemel' Zapadnoi Sibiri].
Panin, P.S., ed, Novosibirsk, Nauka, 1979, 252p., In Russian. For selected papers see 34-3075 through 34-3082. Refs. passim.
Land reclamation, Swamps, Permafrost structure, Cryogenic soils, Taiga, Landscape types, Thermal regime.

34-3075
West Siberia as an object of land reclamation. [Zapadnaia Sibir' kak ob"ekt melioratsii].
Panin, P.S., et al, Osobennosti melioratsii zemel' Zapadnoi Sibiri (Peculiarities of land reclamation in West Siberia) edited by P.S. Panin, Novosibirsk, Nauka, 1979, p.3-4, In Russian. 15 refs.
Land reclamation, Swamps, Permafrost depth, Permafrost structure, Cryogenic soils, Drainage.

34-3076
Possible changes in thermal conditions due to land reclamation. [Teplovye usloviia i ikh vozmozhnye izmeneniia pri gidromelioratsiiakh].
Az'muka, T.I., et al, Osobennosti melioratsii zemel' Zapadnoi Sibiri (Peculiarities of land reclamation in West Siberia) edited by P.S. Panin, Novosibirsk, Nauka, 1979, p.8-25, In Russian. 25 refs.
Voronina, L.V., Guliaev, O.S.
Land reclamation, Swamps, Drying, Deserts, Irrigation, Taiga, Cryogenic soils, Thermal regime, Steppes, Climatic factors.

34-3077
Lands subject to reclamation in the south of the West Siberian Plain. [Melioriruemaia tolshcha iuga Zapadno-Sibirskoi ravniny].
Uglanov, I.N., Osobennosti melioratsii zemel' Zapadnoi Sibiri (Peculiarities of land reclamation in West Siberia) edited by P.S. Panin, Novosibirsk, Nauka, 1979, p.25-76, In Russian. 73 refs.
Land reclamation, Swamps, Forest land, Paludification, Cryogenic soils, Discontinuous permafrost, Bibliographies.

34-3078
Physical properties of soils and forecasting of their changes in reclaimed lands. [Fizicheskie svoistva pochv i prognoz ikh izmeneniia na melioriruemoi territorii].
Panfilov, V.P., et al, Osobennosti melioratsii zemel' Zapadnoi Sibiri (Peculiarities of land reclamation in West Siberia) edited by P.S. Panin, Novosibirsk, Nauka, 1979, p.77-101, In Russian. 15 refs.
Chashchina, N.I., Landina, M.M.
Land reclamation, Taiga, Landscape types, Cryogenic soils, Physical properties.

34-3079
Forecasting soil erosion development in the agricultural zone of West Siberia. [Eroziia pochv i prognoz ee razvitiia v zemledel'cheskoi zone Zapadnoi Sibiri].
Orlov, A.D., Osobennosti melioratsii zemel' Zapadnoi Sibiri (Peculiarities of land reclamation in West Siberia) edited by P.S. Panin, Novosibirsk, Nauka, 1979, p.101-113, In Russian. 10 refs.
Forest land, Steppes, Cryogenic soils, Soil erosion, Frost penetration, Snow cover effect.

34-3080
Regionalization of the southern West Siberian Plain for land reclamation. [Meliorativnoe raionirovanie iuga Zapadno-Sibirskoi ravniny].
Uglanov, I.N., et al, Osobennosti melioratsii zemel' Zapadnoi Sibiri (Peculiarities of land reclamation in West Siberia) edited by P.S. Panin, Novosibirsk, Nauka, 1979, p.116-133, In Russian. 20 refs.
Panin, P.S.
Land reclamation, Swamps, Deserts, Saline soils, Cryogenic soils, Permafrost hydrology, Discontinuous permafrost, Mapping.

34-3081
Hydrochemical runoff and the intensity of soil salinization in West Siberia. [Gidrokhimicheskii stok i intensivnost' zasoleniia pochv Zapadnoi Sibiri].
Panin, P.S., Osobennosti melioratsii zemel' Zapadnoi Sibiri (Peculiarities of land reclamation in West Siberia) edited by P.S. Panin, Novosibirsk, Nauka, 1979, p.141-170, In Russian. 19 refs.
River basins, Taiga, Water chemistry, Saline soils, Soil chemistry, Frost penetration, Snow cover effect.

34-3082
Seasonal moisture exchange dynamics between ground waters and the aeration zone of Kulunda Steppe. [Sezonnaia dinamika vlagoobmena mezhdu gruntovymi vodami i zonoi aeratsii v Kulundinskoi stepi].
Sen'kov, A.A., Osobennosti melioratsii zemel' Zapadnoi Sibiri (Peculiarities of land reclamation in West Siberia) edited by P.S. Panin, Novosibirsk, Nauka, 1979, p.183-190, In Russian. 8 refs.
Steppes, Cryogenic soils, Saline soils, Frost penetration, Ground water, Alimentation, Snowmelt.

34-3083
Icing nozzle element optimization test, January 1979.
Delgado, L.V., *U.S. Air Force Geophysics Laboratory. Technical report*, Aug. 20, 1979, AFGL-TR-79-0193, 370p., ADA-081 175, 3 refs.
Aircraft icing, Cloud physics, Spectroscopy, Climatic factors, Tests.

34-3084
Computer simulation of Great Lakes-St. Lawrence Seaway icebreaker requirements.
Kotras, T.V., et al, *U.S. Coast Guard. Report*, Jan. 1980, CG-D-56-79, 195p., ADA-082 164, 13 refs.
Peter, J.J.
Icebreakers, Ice navigation, Computerized simulation.

34-3085
Ice-release coating for disconnect switches.
Mundon, J.L., *Electric power Research Institute, Palo Alto, California. Report*, Mar. 1980, EL-1330, 24p.
Ice adhesion, Countermeasures, Protective coatings, Polymers, Electric switches, Tests.

34-3086
Russian winter pipeline construction techniques.
Sanders, W.M., *Oil and gas journal*, Apr. 21, 1980, 78(16), p.59-66, 71.
Hot oil lines, Permafrost beneath structures, Underground pipelines, Cold weather construction, Logistics, Snow roads, Hydrocarbons, Design criteria.

34-3087
Effect of ice-albedo feedback on global sensitivity in a one-dimensional radiative-convective climate model.
Wang, W.-C., et al, *Journal of the atmospheric sciences*, Mar. 1980, 37(3), p.545-552, 19 refs.
Stone, P.H.
Ice physics, Albedo, Climate, Models, Air temperature, Heat balance, Radioactivity, Convection, Carbon dioxide.

34-3088
Melting and surface runoff from the Antarctic ice sheet. [Taianie i zhidkii stok s poverkhnosti lednikovogo pokrova Antarktidy].
Klokov, V.D., Leningrad, Gidrometeoizdat, 1979, 128p., In Russian with English table of contents enclosed. 143 refs.
Ice sheets, Runoff, Glacier ablation, Heat balance, Glacier heat balance, Antarctica.
Results of the most recent studies of melting conditions and runoff around the periphery of Antarctica are reviewed. Particular interest attaches to work done in 1969-70 and 1972-73 in Enderby Land in the Molodezhnaya area. A method of determining runoff area is proposed, the structure of heat balance of the melting ice surface discussed, a quantitative assessment of runoff volume done, and recommendations for runoff exploitation offered.

34-3089
Dielectric relaxation spectrum of ice measured with linear blocking layers.
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34-3140
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34-3145
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34-3148
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Mountain glaciers, Moraines, Ground ice, Ground ice, Mapping, Charts.

34-3149
Remarks on the V.A. Kuz'michenok paper "Glaciers on topographic maps and in the Glacier Catalog of the USSR". [K stat'e V.A. Kuz'michenka "Lednik na topograficheskoi karte i v kataloge lednikov SSSR"].
Vinogradov, O.N., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.36, p.255-257, In Russian with English summary.
Mountain glaciers, Alpine landscapes, Moraines, Ground ice, Mapping, Charts.

34-3150
Glaciology at the Fourteenth Pacific Science Congress. [Gliatsiologiia na XIV Tikhookeanskom nauchnom kongresse].
Vtiurin, B.I., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.36, p.258, In Russian.
Meetings, Glaciology, Geocryology, Permafrost origin, Paleoclimatology, Land ice, Paleoecology.

34-3151
Studying dust in ice covers and using it in ice age determination. [Issledovanie pyli v lednikovykh pokrovakh i ispol'zovanie ee pri opredelenii vozrasta l'da].
Gordienko, F.G., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.36, p.259-268, In Russian. 19 refs.
Ice sheets, Ice cores, Ice dating, Aerosols, Dust, Condensation nuclei, Ice crystal growth, Antarctica—Byrd Station.
The significance of soluble and insoluble microparticles and oxygen isotopes for paleoclimatological studies is discussed. Concentration, size distribution and composition of dust were studied in drill cores from the antarctic ice sheet. Electron microscope investigations of snow crystals revealed aerosol distribution, with larger sizes in centers and smaller ones dispersed throughout the crystals: the smaller the condensation nuclei sizes, the larger their quantities. Cyclic variations of dust particle concentrations were observed in Byrd Station samples. It is suggested that this cyclicity can be used in snow-ice stratigraphy problems.

34-3152
Meteorite recoveries in Antarctica during the field season 1977-78.
Yanai, K., et al, Lunar and Planetary Science Conference, 9th, Houston, Texas, March 13-17, 1978. Proceedings, Vol.1, compiled by the Lunar and Planetary Institute, Houston, New York, Pergamon Press, 1978, p.977-987, 8 refs.
Cassidy, W.A., Funaki, M., Glass, B.P.
DLC QB580.L83 1978
Glacier flow, Antarctica—Allan Hills.
Against a long mountain barrier the antarctic ice sheet forms two types of regime: fan-shaped zones from which ice is drained into glaciers passing through the range and somewhat higher-altitude stagnant zones where ice is trapped against the barrier. The Allan Hills site at which a concentration of meteorites was found in field season 1976-77 appears to be of the latter type. Field collections were made at the Allan Hills location again during the 1977-78 field season; 311 specimens were collected. Meteorites were found upon the upper and lower limbs of a monocline described by the ice surface, probably caused by a rocky ridge over which the ice is flowing. Meteorites are apparently exposed first on the upper limb by ablation and then carried to the lower limb, where they remain because the ice of the lower limb cannot flow past Allan Hills. In addition to the meteorites recovered at Allan Hills, a nickel-iron meteorite was discovered by another field party in lower Victoria Valley. (Auth. mod.)

34-3153
On snow crystals of double plate type grown from ice fragments.
Yamami, N., et al, *Seppyo*, Mar. 1980, 42(1), p.1-7, 3 refs., In Japanese with English summary.
Magono, C.
Ice crystal growth, Snow crystal nuclei, Cloud seeding, Dendritic ice, Particles.

34-3154
Physical characteristics of snow cover on the west slope of Mt. Asahidake, Hokkaido.
Nishimura, H., et al, *Seppyo*, Mar. 1980, 42(1), p.9-15, 10 refs., In Japanese with English summary.
Suizu, S., Yamada, T.
Snow stratigraphy, Snow physics, Snow cover distribution, Snow depth, Snow water equivalent, Snow density, Snow hardness, Slope orientation.

34-3155
Rectangular plate loading test on snow-mobility of tracked oversnow vehicle.
Muro, T., et al, *Seppyo*, Mar. 1980, 42(1), p.17-24, 12 refs., In Japanese with English summary.
Yong, R.N.
Tracked vehicles, Trafficability, Snow loads, Snow compression, Snow deformation, Snow density, Snow thermal properties, Tests.

34-3156
Vane cone test of snow—mobility of tracked oversnow vehicle.
Muro, T., et al, *Seppyo*, Mar. 1980, 42(1), p.25-32, 6 refs., In Japanese with English summary.
Yong, R.N.
Tracked vehicles, Trafficability, Snow loads, Snow compression, Snow strength, Tests, Shear rate.

34-3157
Pore-water pressure profile of a freezing soil.
Fukuda, M., *Seppyo*, Mar. 1980, 42(1), p.33-40, 13 refs., In Japanese with English summary.
Soil freezing, Soil water, Water pressure, Freezing points, Porosity, Loams.

34-3158
Distribution of alpine permafrost in the northern hemisphere and its relationship to the environmental condition.
Fujii, Y., *Seppyo*, Mar. 1980, 42(1), p.41-52, 50 refs., In Japanese with English summary.
Permafrost distribution, Alpine landscapes, Environments, Air temperature, Altitude, Mountains, Forest lines.

34-3159
Methods of investigations in engineering geocryology.
Dement'ev, A.I., et al, *National Research Council, Canada. Technical translation*, 1967, TT-1287, 67p., For Russian original see SIP-17845. 19 refs.
Geocryology, Permafrost physics, Permafrost thickness, Engineering, Cold weather construction, Frozen ground physics, Freeze thaw cycles, Frost heave, Permafrost thermal properties.

34-3160
Alaskan field work progresses for gas pipeline. *Oil and gas journal*, May 12, 1980, 78(19), p.81.
Gas pipelines, Drilling, Permafrost beneath structures, Bearing strength, Soil strength, Site surveys.

34-3161
Development of natural resources in Subarctic regions. [Osvoenie bogatstv Pripoliarnogo kraia].
Malakhova, M.M., *Stroitel'stvo truboprovodov*, Apr. 1980, No.4, p.20-21, In Russian.
Pipelines, Permafrost beneath structures, Petroleum transportation, Polar regions.

34-3162
Improving the structure of management of the West Siberian Petroleum Complex. [Sovershenstvovanie struktury upravleniia Zapadno-Sibirskim neftegazovym kompleksom].
Vozniak, V.IA., *Stroitel'stvo truboprovodov*, Apr. 1980, No.4, p.22-24, In Russian.
Petroleum industry, Construction materials, Transportation, Polar regions, Research projects.

34-3163
Scientific research in the last year of the Five-year Plan. [Razrabotka nauchnykh problem v zavershaiushchem godu piatiletki].
Ivantsov, O.M., *Stroitel'stvo truboprovodov*, Apr. 1980, No.4, p.25-29, In Russian.
Petroleum industry, Construction, Pipelines, Roads, Permafrost beneath structures.

34-3164
Calculating temperature regime of underground structures. [Raschet temperaturnogo rezhima stroitel'nykh konstruktsii raspolozhennykh pod sloem grunta]. Makagonov, V.A., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura,* 1980, No.1, p.45-49, In Russian. 4 refs.
Underground storage, Liquefied gases, Concrete structures, Reinforced concretes, Design.

34-3165
Thermal and settlement stresses in concretes. [Issledovanie temperaturnykh i usadochnykh napriazhenii v betonakh].
Pechenyi, B.G., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura,* 1980, No.1, p.73-77, In Russian. 10 refs.
Roads, Pavements, Concrete structures, Seasonal freeze thaw, Thermal stresses, Settlement (structural), Design.

34-3166
Studying properties of concretes saturated with sulfur solutions. [Issledovanie svoistv betonov propitannykh rasplavom sery].
Orlovskii, IU.I., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura,* 1980, No.1, p.78-81, In Russian. 5 refs.
Manzin V.P.
Concretes, Waterproofing, Frost resistance, Concrete strength.

34-3167
Calculating nonstationary temperature and moisture regimes of washed-up earth structures in a thawed state. [Raschet nestatsionarnogo temperaturno-vlazhnostnogo rezhima namyvnykh gruntovykh sooruzhenii v talom sostoianii].
Popov, IU.A., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura,* 1989, No.1, p.94-101, In Russian. 8 refs.
IL'sha, N.D.
Hydraulic structures, Thermal regime, Permafrost beneath structures, Earth dams, Dredging, Freeze thaw cycles, Design.

34-3168
Ice loads on structures of the Baykal Amur railroad. [Vozdeistvie l'da na sooruzheniia trassy BAMa].
Korzhavin, K.N., ed, *Novosibirsk. Institut inzhenerov zheleznodorozhnogo transporta. Trudy,* 1977, Vol.181, 121p., In Russian. For individual papers see 34-3169 through 34-3179. Refs passim.
DLC TF4.N662, Vyp.181
Concrete structures, Bridges, Piers, Dams, Hydraulic structures, Moorings, Culverts, Ice loads, Ice jams, Icebound lakes, Icebound rivers, Ice crossings, Baykal Amur railroad.

34-3169
Ice loads on bridge piers in the Baykal Amur railroad area. [Vozdeistvie l'da na opory mostov na trasse BAMa].
Korzhavin, K.N., *Novosibirsk. Institut inzhenerov zheleznodorozhnogo transporta. Trudy,* 1977, Vol.181, p.3-17, In Russian. 17 refs.
Bridges, Piers, Ice loads, Ice floes, Design, Baykal Amur railroad.

34-3170
Forecasting ice jam conditions in front of Baykal Amur railroad structures. [O metodike ucheta sostoianiia zatorov l'da pered iskusstvennymi sooruzheniiami na trasse BAMa].
Troinin, V.K., *Novosibirsk. Institut inzhenerov zheleznodorozhnogo transporta. Trudy,* 1977, Vol.181, p.18-24, In Russian. 4 refs.
Icebound rivers, Ice breakup, Ice jams, Bridges, Hydraulic structures, Ice loads, Baykal Amur railroad, Design.

34-3171
Experimental study of river ice friction. [Eksperimental'noe izuchenie treniia rechnogo l'da].
Korzhavin, K.N., et al, *Novosibirsk. Institut inzhenerov zheleznodorozhnogo transporta. Trudy,* 1977, Vol.181, p.25-36, In Russian. 8 refs.
Postnikov, P.M.
River ice, Concrete structures, Ice friction.

34-3172
Selecting design values of air temperature differences when evaluating static loads of thermal ice expansion on bridge piers. [Vybor raschetnykh perepadov temperatur vozdukha pri otsenke termicheskogo davleniia l'da na opory mostov].
Ptukhin, F.I., *Novosibirsk. Institut inzhenerov zheleznodorozhnogo transporta. Trudy,* 1977, Vol.181, p.37-46, In Russian. 3 refs.
Icebound lakes, Bridges, Piers, Ice loads.

34-3173
Static ice cover loads on isolated structures. [Termicheskoe davlenie ledianogo pokrova na otdel'no stoiashchie sooruzheniia].
Ivchenko, A.B., *Novosibirsk. Institut inzhenerov zheleznodorozhnogo transporta. Trudy,* 1977, Vol.181, p.47-50, In Russian. 4 refs.
Icebound lakes, Bridges, Piers, Ice loads, Design.

34-3174
Experience of using an ice protection dam in the lower course of the Yenisey River. [Opyt ispol'zovaniia ledozashchitnoi damby v nizov'iakh r. Eniseia].
Samochkin, V.M., et al, *Novosibirsk. Institut inzhenerov zheleznodorozhnogo transporta. Trudy,* 1977, Vol.181, p.51-55.
Postnikov, P.M.
Ice breakup, Ice jams, Hydraulic structures, Moorings, Ice loads, Protection, Dams, USSR—Yenisey River.

34-3175
Calculating the safety coefficient for bearing capacity of ice covers. [Otsenka koeffitsienta zapasa pri raschete nesushchei sposobnosti ledianogo pokrova].
Ptukhin, F.I., *Novosibirsk. Institut inzhenerov zheleznodorozhnogo transporta. Trudy,* 1977, Vol.181, p.56-71.
Icebound lakes, Icebound rivers, Ice cover strength, Ice crossings, Design.

34-3176
Forecasting naled formation on small streams crossed by the Baykal Amur railroad. [Prognoz vozniknoveniia naledei na malykh vodotokakh po trasse BAMa].
Samochkin, V.M., *Novosibirsk. Institut inzhenerov zheleznodorozhnogo transporta. Trudy,* 1977, Vol.181, p.72-90, In Russian. 16 refs.
Icebound rivers, Subglacial drainage, Permafrost hydrology, Naleds, Ice growth.

34-3177
Pressure of naled ice on culvert walls in areas with severe climatic conditions. [Silovoe vozdeistvie naledi na stenki vodopropusknykh trub v surovykh klimaticheskikh usloviiakh].
Ivchenko, A.B., *Novosibirsk. Institut inzhenerov zheleznodorozhnogo transporta. Trudy,* 1977, Vol.181, p.91-100, In Russian. 12 refs.
Permafrost hydrology, Naleds, Ice loads, Hydraulic structures, Culverts.

34-3178
Ice accretion beneath snow cover. [Narastanie l'da pod snezhnym pokrovom].
Raspopin, G.A., et al, *Novosibirsk. Institut inzhenerov zheleznodorozhnogo transporta. Trudy,* 1977, Vol.181, p.101-111, In Russian. 4 refs.
Kuzub, G.IA.
Icebound rivers, Icebound lakes, Snow cover distribution, Ice accretion, Snow ice interface, Stefan problem, Mass transfer.

34-3179
Selecting the system and determining water exchange regime for swimming pools in regions with severe climatic conditions. [K vyboru sistemy i opredeleniiu rezhima vodoobmena dlia kupal'no-plavatel'nykh sooruzhenii v raionakh s surovymi klimaticheskimi usloviiami].
Artemenok, N.D., et al, *Novosibirsk. Institut inzhenerov zheleznodorozhnogo transporta. Trudy,* 1977, Vol.181, p.112-117, In Russian. 4 refs.
Kunts, K.L.
Permafrost beneath structures, Water supply, Design, Swimming pools.

34-3180
Design and construction of building foundations on permafrost. [Osobennosti proektirovaniia i ustroistva osnovanii zdanii na merzlykh gruntakh].
Goncharov, IU.M., et al, Leningrad, Stroiizdat, 1980, 241p. In Russian with English table of contents enclosed. 66 refs.
Komzina, A.A., Malkov, E.N.
Foundations, Permafrost bases, Pile structures, Bearing strength, Buildings.

34-3181
Methods of studying experimental prestressed concrete spans of railroad bridges designed for the North. [Metodika issledovaniia opytnykh predvaritel'no napriazhennykh proletnykh stroenii zheleznodorozhnykh mostov severnogo ispolneniia].
Skopich, V.M., et al, *Vsesoiuznyi nauchno-issledovatel'skii institut transportnogo stroitel'stva. Trudy,* 1979, Vol.107, p.54-70, In Russian. 5 refs.
Baluchik, L.A., Drobyshevskii, B.A.
Railroads, Bridges, Prestressed concretes, Permafrost beneath structures, Design.

34-3182
Methods of determining thermal, moisture and physical characteristics of concretes. [Metodika opredeleniia teplo-vlagofizicheskikh kharakteristik betona].
Drobyshevskii, B.A., *Vsesoiuznyi nauchno-issledovatel'skii institut transportnogo stroitel'stva. Trudy,* 1979, Vol.107, p.70-73, In Russian.
Concrete structures, Bridges, Concrete strength, Frost resistance.

34-3183
Equivalent coefficients of moisture diffusion for concretes used in bridge construction. [Ekvivalentnye koeffitsienty diffuzii vlagi dlia betona mostovykh konstruktsii].
Drobyshevskii, B.A., *Vsesoiuznyi nauchno-issledovatel'skii institut transportnogo stroitel'stva. Trudy,* 1979, Vol.107, p.73-79, In Russian. 8 refs.
Concrete structures, Bridges, Concrete strength, Frost resistance.

34-3184
Present state and prospects of excavating frozen ground and permafrost. [Sostoianie i perspektivy razrabotki merzlykh i vechnomerzlykh gruntov].
Balbachan, I.P., et al, *Mekhanizatsiia stroitel'stva,* Apr. 1980, No.4, p.16-19, In Russian.
Kammerer, IU.IU., Osadchii, A.M.
Permafrost, Excavation, Equipment.

34-3185
Oceanographic characteristics in the Caspian Sea near the ice edge. [Osobennosti okeanologicheskikh kharakteristik v raione kromki l'da v Kaspiiskom more].
Kosarev, A.N., et al, *Kompleksnye issledovaniia prirody okeana,* 1979, Vol.6, p.170-180, In Russian. 5 refs.
Malbandov, IU.R., Sokol'skii, V.M.
Ice conditions, Sea water freezing, Ice edge, Brines, Salinity, Air temperature, Water temperature, Ice formation, USSR—Caspian Sea.

34-3186
Allowing for ice cover effect when selecting an optimal way of ice navigation with icebreakers. [Uchet vliianiia ledianogo pokrova pri vybore optimal'nogo vida ledokol'noi provodki morskikh sudov].
Buzuev, A.IA., et al, *Leningrad. Tsentral'nyi nauchno-issledovatel'skii institut morskogo flota. Trudy,* 1979, Vol.241, p.66-74, In Russian. 5 refs.
Dubovtsev, V.F., Sergeev, G.I., Simonov, IU.A.
Ice navigation, Icebreakers.

34-3187
Selecting economically feasible velocity of transport ships designed for ice navigation. [Vybor ekonomicheski tselesoobraznoi skorosti transportnykh sudov ledovogo plavaniia].
Tsoi, L.G., et al, *Leningrad. Tsentral'nyi nauchno-issledovatel'skii institut morskogo flota. Trudy,* 1979, Vol.241, p.74-78, In Russian.
Kriazheva, L.IA., Ierusalimskii, A.V., Shuklenkova, O.N.
Ice navigation, Ships, Velocity, Design.

34-3188
Modelling the processes of river runoff formation. [Modeli protsessov formirovaniia rechnogo stoka].
Kuchment, L.S., Leningrad, Gidrometeoizdat, 1980, 143p., In Russian with English table of contents enclosed. 114 refs.
Meltwater, Mathematical models, Runoff, Surface waters, Water flow, Ground water, Soil water migration, Frost penetration, River basins.

34-3189
Field studies of naleds. [Polevye issledovaniia naledei].
Alekseev, V.R., et al, Leningrad, Gidrometeoizdat, 1980, 152p., In Russian with English table of contents enclosed. 94 refs.
Sokolov, B.L.
Naleds, Classifications, Aerial surveys, Spaceborne photography, Ice cover thickness, Radar echoes, Origin.

34-3190
Working with concrete (technology and organization).
Balitskii, V.S., et al, *U.S. Army Foreign Science and Technology Center. Translation*, Feb. 1980, FSTC-HT-256-78, 350p., Translation of Betonnye raboty (Tekhnologiia i organizatsiia), Kiev, Budivel'nik, 1977, 240p. 54 refs.
Marchenko, L.S.
Concrete placing, Concrete curing, Concrete admixtures, Frost action, Frost resistance, Heating, Concrete strength, Winter concreting.

34-3191
Studies on interaction between wind and dry snow surfaces.
Kobayashi, S., *Hokkaido University, Sapporo, Japan. Institute of Low Temperature Science. Contribution. Series A*, 1979, No.29, 64p., Refs. p.61-64.
Snow surface, Ice surface, Wind factors, Wind velocity, Topography, Drift, Erosion, Snow air interface, Boundary layer, Antarctica—Mizuho Plateau.
Interaction between the wind and the surface of dry snow and bare ice has been studied by analyzing systematic and quantitative data obtained from field and laboratory researches on the formation of snow waves, which represent one of a variety of deposition erosion patterns (waves, ripples, barchans, sastrugi, dunes, pits, etc.) formed on a snowfield, as a wind redistributes a surface layer of deposited snow. Profiles of wind speed were obtained from measurements in the lower surface layer, where snow drifts over dry snow and bare ice surfaces, in Hokkaido, Japan, and in Mizuho Plateau, East Antarctica. A helicoidal stream around an obstruction (two small huts) was observed by trajectories of smoke and drifting snow particles. When a wind stream encountered an obstacle or a surface irregularity, its boundary layer was separated and turbulent waves were formed around it. Deposition and erosion are discussed in connection with local eddy patterns. (Auth. mod.)

34-3192
Offshore pipelines in the Arctic.
Timmermans, W.J., *Pipeline and gas journal*, Apr. 1980, 207(4), p.20-24.
Offshore structures, Pipe laying, Ice conditions, Subsea permafrost, Artificial islands, Tunnels, Ice islands.

34-3193
Offshore innovations. *Pipeline and gas journal*, Apr. 1980, 207(4), p.25-28, 34.
Offshore structures, Pipe laying, Pipeline freezing, Ocean bottom, Maintenance, Flexural strength.

34-3194
Bedrock freeze-thaw weathering regime in an alpine environment, Colorado Front Range.
Thorn, C.E., *Earth surface processes*, July-Sep. 1979, 4(3), p.211-228, 33 refs.
Frozen rocks, Frost weathering, Freeze thaw cycles, Alpine landscapes, Air temperature, Seasonal variations, Geomorphology.

34-3195
Sorted strips orientated by wind action: some observations from sub-Antarctic Marion Island.
Hall, K., *Earth surface processes*, July-Sep. 1979, 4(3), p.281-289, 14 refs.
Ice needles, Frost action, Rock weathering, Glacial deposits, Periglacial processes, Wind factors, Marion Island.
Sorted stripes found on the volcanic scoria and glacial deposits of Subantarctic Marion Island indicate a distinct preferred orientation. Despite uniformity of slope and material, the stripes are predominantly aligned parallel to the wind. It is suggested that melting of needle ice by the early morning sun is of only limited importance in the Subantarctic, owing to the almost continual overcast conditions. The effect of the wind is so great that in exposed situations stripes are formed on horizontal sufaces. (Auth.)

34-3196
Recommendations for the design and construction of tailings dumps under severe climatic conditions. [Rekomendatsii po proektirovaniiu sooruzhenii khvostokhranilishch v surovykh klimaticheskikh usloviiakh],
Moscow. Vsesoiuznyi nauchno-issledovatel'skii institut vodosnabzheniia, kanalizatsii, gidrotekhnicheskikh sooruzhenii i inzhenernoi gidrogeologii, Moscow, 1977, 152p., In Russian with English table of contents enclosed.
Mining, Earth dams, Tailings, Embankments, Permafrost beneath structures, Slurry ponds.

34-3197
Effectiveness of using mineral raw materials in the Far North. [Effektivnost' ispol'zovaniia mineral'nogo syr'ia v usloviiakh Krainego Severa],
Fedoseev, V.A., Leningrad, Nauka, 1979, 215p., In Russian with abridged English table of contents enclosed. 138 refs.
Economic development, Mining, Construction materials, Minerals, Fuels, Transportation.

34-3198
Environmental analysis of the Upper Susitna River Basin using Landsat imagery.
Gatto, L.W., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Jan. 1980, CR 80-4, 41p., ADA-084 900, 52 refs.
Merry, C.J., McKim, H.L., Lawson, D.E.
Aerial surveys, Remote sensing, Spaceborne photography, LANDSAT, Mapping, Photointerpretation, Spacecraft, River basins, Environments, United States—Alaska—Susitna River.
The primary objectives of this study were to 1) prepare a map from Landsat imagery of the Upper Susitna River Basin drainage network, lakes, glaciers and snowfields, 2) identify possible faults and lineaments within the upper basin and within a 100-km radius of the proposed Devil Canyon and Watana dam sites as observed on Landsat imagery, and 3) prepare a Landsat-derived map showing the distribution of surficial geologic materials and poorly drained areas. The EROS Digital Image Enhancement System (EDIES) provided computer-enhanced images of Landsat-1 scene 5470-19560. The EDIES false color composite of this scene was used as the base for mapping drainage network, lakes, glaciers and snowfields, six surficial geologic materials units and poorly drained areas. Some single-band and other color composites of Landsat images were used during interpretation. All the above maps were prepared by photointerpretation of Landsat images without using computer analysis, aerial photographs, field data, or published reports.

34-3199
Analysis of the performance of a 140-foot Great Lakes icebreaker: USCGC *Katmai Bay*.
Vance, G.P., *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, CR 80-8, 28p., ADA-084 736, 8 refs.
Icebreakers, Bubbles, Protective coatings, Ice cover thickness, Ice friction, Ice strength.
This report presents the results of the tests on the new U.S. Coast Guard 140-ft icebreaker Katmai Bay (WTGB-101) in the level plate ice and brash ice in Whitefish Bay and the St. Marys River. The results indicate that the vessel can penetrate 22 in. of level freshwater ice with 2-3 in. of snow cover. It can also penetrate up to 48 in. of brash ice in a continuous mode and at least 30 in. of plate ice by backing and ramming. The installed bubbler system decreased the required power of the vessel from 10 to 30% in brash ice and 25 to 35% in level ice. The low friction coating appears to be effective in decreasing the friction factor when it remains intact; when it peels off, it appears to make conditions worse than plain paint. An average dynamic friction factor of 0.15 could be used over the entire hull for these tests.

34-3200
Mathematical model to correlate frost heave of pavements with laboratory predictions.
Berg, R.L., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, CR 80-10, 49p., ADA-084 737, 67 refs.
Guymon, G.L., Johnson, T.C.
Mathematical models, Frost heave, Frost penetration, Heat transfer, Soil water migration, Pavements, Computerized simulation, Laboratory techniques, Forecasting.
A mathematical model of coupled heat and moisture flow in soils has been developed. The model includes algorithms for phase change of soil moisture and frost heave and permits several types of boundary and initial conditions. The finite element method of weighted residuals (Galerkin procedure) was chosen to simulate the spatial regime, and the Crank-Nicholson method was used for the time domain portion of the model. To facilitate evaluation of the model, the heat and moisture fluxes were essentially decoupled; moisture flux was then simulated accurately, as were heat flux and frost heave in a laboratory test. Comparison of the simulated and experimental data illustrates the importance of unsaturated hydraulic conductivity. It is one parameter which is difficult to measure and for which only a few laboratory test results are available. Therefore, unsaturated hydraulic conductivities calculated in the computer model may be a significant source of error in calculations of frost heave. The algorithm incorporating effects of surcharge and overburden was inconclusively evaluated. Time-dependent frost penetration and frost heave in laboratory specimens were closely simulated with the model. After 10 days of simulation, the computed frost heave was about 2.3 cm vs 2.0 cm and 2.8 cm in two tests. Frost penetration was computed as 15 cm and was measured at 12.0 cm and 12.2 cm in the two laboratory samples after 10 days.

34-3201
Seasonal cycle of snow cover, sea ice and surface albedo.
Robock, A., *Monthly weather review*, Mar. 1980, 108(3), p.267-285, 41 refs.
Remote sensing, Snow cover distribution, Sea ice distribution, Albedo, Mapping, Seasonal variations, Meltwater, Solar radiation, Surface temperature.

34-3202
Preliminary study of ice grown by droplet accretion using water-insoluble particles as tracer.
Prodi, F., et al, *Journal of applied meteorology*, Mar. 1980, 19(3), p.284-289, 13 refs.
Nagamoto, C.T., Rosinski, J.
Ice growth, Cloud droplets, Ice accretion, Ice structure, Particles, Freezing, X ray analysis, Hailstone growth, Wind tunnels, Water pollution.

34-3203
Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975. [Trudy],
Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Erevan, Izd-vo Erevanskogo Universiteta, 1976, 406p., In Russian. For selected see 34-3204 through 34-3225. Refs. passim.
DLC TA710.A1V74
Clays, Clay soils, Tailings, Frozen fines, Deformation, Rheology, Frost penetration, Fracturing, Ground ice, Ice crystals, Ice physics.

34-3204
Theory of shearing creep of clay and its experimental confirmation. [Teoriia polzuchesti gliny pri sdvige i ee eksperimental'noe podtverzhdenie],
Ter-Stepanian, G.I., Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.74-97, In Russian. 17 refs.
DLC TA710.A1V74
Clays, Shear strength, Rheology, Creep.

34-3205
Shearing creep of clay soils due to vibration. [Sdvigovaia vibropolzuchest' glinistogo grunta],
Badalian, R.G., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.117-127, In Russian. 5 refs.
Meschian, S.R.
DLC TA710.A1V74
Clay soils, Rheology, Vibration, Creep.

34-3206
Forecasting collapse of frozen rock slopes. [Prognozirovanie vremeni do obrusheniia otkosov merzlykh porod],
Vialov, S.S., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.143-151, In Russian. 4 refs.
Bondarenko, G.I.
DLC TA710.A1V74
Frozen ground, Tailings, Slope processes, Sliding, Frozen rocks.

34-3207
Studying static growth of cracks in sand at subzero temperatures. [Issledovanie staticheskogo rosta treshchin v peske pri otritsatel'noi temperature],
Grechishchev, S.E., Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.158-164, In Russian. 2 refs.
DLC TA710.A1V74
Sands, Frost penetration, Frost action, Fracturing.

34-3208
Micromechanism of ice deformation under load. [K voprosu o mikromekhanizme deformirovaniia l'da pod nagruzkoi],
Zaretskii, IU.K., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.200-210, In Russian. 11 refs.
Solomatin, V.I., Chumichev, B.D.
DLC TA710.A1V74
Ice crystals, Ice crystal structure, Ice acoustics, Ice mechanics, Deformation.

34-3209
Determining creep parameters of weak clayey soils. [K voprosu ob opredelenii parametrov polzuchesti slabykh glinistykh gruntov],
Karpov, V.M., Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.211-219, In Russian. 6 refs.
DLC TA710.A1V74
Clay soils, Rheology, Creep.

34-3210
Creep as reflected in the numerical calculation of the stress-strain state of foundations. [Otrazhenie polzuchesti v chislennom raschete napriazhenno-deformirovannogo sostoianiia osnovanii],
Kryzhanovskii, A.L., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.220-227, In Russian. 10 refs.
Kulikov, O.V., Tsytovich, N.A.
DLC TA710.A1V74
Frozen fines, Clays, Rheology, Deformation.

34-3211
Factors determining rheologic properties of clays. [Faktory opredeliaiushchie reologicheskie svoistva gornykh porod],
Kul'chitskii, L.I., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.228-240, In Russian. 12 refs.
Bondarik, G.K.
DLC TA710.A1V74
Clays, Rheology, Models.

34-3212
Collapse of fluid and semi-solid clay soils. [Osobennosti razrusheniia glinistykh gruntov polutverdoi i tekuchei konsistentsii],
Maksimiak, R.V., Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.241-246, In Russian. 1 ref.
DLC TA710.A1V74
Clay soils, Plastic deformation, Plastic flow.

34-3213
Strength of clay soils in time. [Priroda prochnosti glinistykh gruntov vo vremeni],
Maslov, N.N., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.247-255, In Russian.
Karaulova, Z.M.
DLC TA710.A1V74
Clay soils, Sliding, Supports, Walls, Foundations, Piles.

34-3214
Compression creep of sagging ground. [Kompressionnaia polzuchest' prosadochnykh gruntov],
Meschian, S.R., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.256-267, In Russian. 6 refs.
Badalian, R.G., Malakian, R.P.
DLC TA710.A1V74
Clay soils, Compressive properties, Rheology, Settlement (structural).

34-3215
Skeleton creep of weak water-saturated clay soils. [Polzuchest' skeleta slabykh vodonasyshchennykh gruntov],
Meschian, S.R., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.268-277, In Russian. 6 refs.
Galstian, R.R., Badalian, R.G.
DLC TA710.A1V74
Clay soils, Soil water, Rheology, Creep.

34-3216
Determining stress relaxation in clayey grounds at shearing. [O metodike opredeleniia relaksatsii napriazhenii v glinistykh gruntakh pri sdvige],
Meschian, S.R., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.278-282, In Russian. 3 refs.
Postolakian, R.A.
DLC TA710.A1V74
Clay soils, Shear stress, Relaxation (mechanics), Rheology.

34-3217
Influence of transient processes on bearing strength of piles in weak clayey grounds. [Vliianie vremennykh protsessov na formirovanie nesushchei sposobnosti svai v slabykh glinistykh gruntakh],
Mets, M.A., Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.283-296, In Russian 4 refs.
DLC TA710.A1V74
Clay soils, Foundations, Piles, Bearing strength.

34-3218
Studying stress relaxations in water-saturated clayey soils. [Issledovanie relaksatsii napriazhenii v vodonasyshchennom glinistom grunte],
Postolakian, R.A., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.303-313, In Russian. 9 refs.
Meschian, S.R.
DLC TA710.A1V74
Clay soils, Soil water, Relaxation (mechanics), Foundations, Settlement (structural).

34-3219
Studying the effect of loading regime on the strength of clay soils. [Issledovanie vliianiia rezhima zagruzheniia na prochnost' glinistykh gruntov],
Sorokina, G.V., Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.314-321, In Russian. 5 refs.
DLC TA710.A1V74
Clay soils, Plastic properties, Viscous flow, Soil strength.

34-3220
Univariate compaction of ground, allowing for visco-plastic deformations. [Odnomernoe uplotnenie gruntov s uchetom viazko-plasticheskikh deformatsii],
Ter-Martirosian, Z.G., Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.322-327, In Russian. 8 refs.
DLC TA710.A1V74
Clays, Compressive properties, Soil compaction, Creep, Viscoelasticity, Plastic deformation.

34-3221
Studying wave processes in linear viscoelastic media under dynamic loads. [Issledovanie volnovykh protsessov v lineinykh viazkouprugikh sredakh pri vozdeistvii dinamicheskikh nagruzok],
Filippov, I.G., Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.328-345, In Russian. 6 refs.
DLC TA710.A1V74
Clays, Dynamic loads, Stresses, Analysis (mathematics).

34-3222
Nonlinear consolidation of clays allowing for aging. [Nelineinaia konsolidatsiia glin s uchetom stareniia],
Tsytovich, N.A., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.346-351, In Russian. 12 refs.
Ter-Martirosian, Z.G., Nuridzhanian, S.Sh.
DLC TA710.A1V74
Soil compaction, Clay soils, Peat, Soil water, Rheology, Compressive properties.

34-3223
Shearing creep mechanism at variable pore pressure. [O mekhanizme polzuchesti sdviga pri peremennom porovom davlenii],
Tsytovich, N.A., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.352-359, In Russian. 7 refs.
Ter-Martirosian, Z.G., [illegible]
DLC TA710.A1V74
Clay soils, Shear strength, Creep.

34-3224
Determining rheologic properties of perennially frozen hard fractured rocks. [Nekotorye voprosy opredeleniia reologicheskikh svoistv vechnomerzlykh treshchinovatykh skal'nykh porod],
Tsytovich, N.A., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.360-368, In Russian. 21 refs.
Kubetskii, V.L.
DLC TA710.A1V74
Permafrost bases, Fracturing, Ground ice, Rheology.

34-3225
Calculating nonstationary flow rates of landslide-mudflows. [Raschet skorosti nestatsionarnogo techeniia opolznei-potokov],
Shadunts, K.Sh., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.369-376, In Russian. 7 refs.
Kulikov, N.P.
DLC TA710.A1V74
Slope processes, Landslides, Clays, Mudflows.

34-3226
Geosystems of the West Sayan foothills. [Geosistemy predgorii Zapadnogo Saiana],
Antipov, A.N., et al, Novosibirsk, Nauka, 1979, 319p., In Russian with abridged English table of contents enclosed. Refs. p.304-313.
Taiga, Landscape types, Cryogenic soils, Slope processes, Snow cover distribution, Forest canopy, Soil water migration, USSR—Sayan Mountains.

34-3227
Studying the structure of forest tundra landscapes as indicators of engineering and geological conditions for economic development in West Siberia. [Izuchenie struktury prirodnykh kompleksov lesotundry dlia indikatsii inzhenerno-geokriologicheskikh uslovii v raionakh khoziaistvennogo osvoeniia Zapadnoi Sibiri],
Moskalenko, N.G., et al, Znachenie biogeografii dlia melioratsii (Significance of biogeography for land reclamation) edited by A.G. Voronov and D.D. Vyshivkin, Moscow, 1979, p.88-100, In Russian. 5 refs.
Slavin-Borovskii, V.B., Ukraintseva, N.G., Shchur, IU.L.
Forest tundra, Environmental protection, Human factors, Construction, Petroleum industry, Landscape types, Permafrost distribution, Permafrost hydrology.

34-3228
Introduction of indigenous plants in the northern Kola Peninsula. [Introduktsiia rastenii prirodnoi flory na Kol'skom Severe],
Andreev, G.N., Voprosy introduktsii rastenii na Kol'skom Severe (Introduction of plants in the northern Kola Peninsula) edited by G.N. Andreev and L.M. Luk'ianova, Apatity, Akademiia nauk SSSR, 1979, p.3-14, In Russian. Refs. p.12-14.
Introduced plants, Plant ecology, USSR—Kola Peninsula.

34-3229
Acclimatization of introduced plants and ways to hasten it in high latitudes. [Akklimatizatsiia fitointrodutsentov i puti ee uskoreniia v regionakh vysokikh shirot].
Agaev, M.G., Voprosy introduktsii rastenii na Kol'skom Severe (Introduction of plants in the northern Kola Peninsula) edited by G.N. Andreev and L.M. Luk'ianova, Apatity, Akademiia nauk SSSR, 1979, p.15-25, In Russian. Refs. p.23-25.
Introduced plants, Plant physiology, Plant ecology, USSR—Kola Peninsula.

34-3230
Significance of antarctic and subantarctic regions for plant introduction research. [Znachenie antarkticheskikh i subantarkticheskikh raionov dlia tselei introduktsii rastenii].
Golovkin, B.N., Voprosy introduktsii rastenii na Kol'skom Severe (Introduction of plants in the northern Kola Peninsula) edited by G.N. Andreev and L.M. Luk'ianova, Apatity, Akademiia nauk SSSR, 1979, p.30-41, Russian. Refs. p.40-41.
Introduced plants, Plant ecology.
Plants of the subantarctic and antarctic areas hold great promise as potential species suitable for introduction in the Far North, since they are able to withstand harsh conditions. Some few on-side introduction studies have been done with such plants, these are reviewed here. Also, subantarctic and antarctic plants have been successfully cultivated in various botanical gardens and research stations in the Soviet Union and elsewhere. This research is also reviewed with the aim of identifying promising directions for future work.

34-3231
Preliminary investigations of the kinetics of nitrogen transformation and nitrosamine formation in land treatment of wastewater.
Jacobson, S., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1979, SR 79-4, 59p., ADA-086 169, 94 refs.
Alexander, M.
Waste disposal, Water treatment, Soil chemistry, Laboratory techniques.
In laboratory experiments, denitrification of nitrate in wastewater proceeded slowly in an acid soil (pH 4.2), but the rate was fast in soils with pH values of 5.5 to 6.8. The rate of denitrification was governed by the carbon source added, with glucose supporting the fastest rate. The rate was somewhat slower with methanol and succinate and was appreciably slower with secondary effluents as the source of supplemental carbon. Charlton loam supported the more rapid denitrification with glucose as a carbon source, but the rate was higher in Windsor sandy loam with sewage as the carbon source. Denitrification in these soils did not occur at 1C, and the rate increased with rising temperatures.

34-3232
English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2.
International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, Ottawa, Canada, National Research Council, Mar. 1980, 428p., Refs. passim. For individual papers see 34-3233 through 34-3259.
Geocryology, Permafrost physics, Permafrost forecasting, Permafrost control, Soil chemistry, Subsea permafrost, Environmental protection, Engineering.

34-3233
Principles of cryolithological regionalization of the permafrost zone.
Vtiurin, B.I., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.1-9, 13 refs. For Russian original see 32-3730.
Mapping, Permafrost structure, Charts, Cryogenic textures, Ground ice, Permafrost ice content.

34-3234
Terrain-forming processes in the permafrost region and the principles of their prevention and limitation in territories under development.
Grave, N.A., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.11-23, 22 refs. For Russian original see 32-3733
Sukhodrovskii, V.L.
Geocryology, Solifluction, Frost weathering, Frost heave, Thermokarst, Permafrost transformation, Human factors.

34-3235
Hydrogeochemical investigations in permafrost studies.
Anisimova, N.P., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.25-41, 11 refs. For Russian original see 23-3736.
Permafrost origin, Ground ice, Permafrost transformation, Permafrost hydrology, Water chemistry.

34-3236
Use of AC current surveys in permafrost studies.
Avetikian, IU.A., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.43-56, 4 refs. For Russian original see 32-3739.
Permafrost physics, Electromagnetic prospecting, Measuring instruments.

34-3237
Forecast of changes in geocryological conditions during economic development of the permafrost region.
Kudriavtsev, V.A., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.57-69, For Russian original see 32-3742.
Maksimova, L.N.
Permafrost transformation, Human factors, Permafrost forecasting, Permafrost control.

34-3238
Geocryological survey methods.
Kudriavtsev, V.A., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.71-84, For Russian original see 32-3743.
Kondrat'eva, K.A.
Geocryology, Surveys, Permafrost distribution, Permafrost structure, Economic development, Human factors, Permafrost transformation, Permafrost forecasting, Environmental protection.

34-3239
Electrical state of a permafrost cross section.
Mel'nikov, V.P., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.85-102, 12 refs. For Russian original see 32-3745.
Gennadinik, B.I.
Electromagnetic prospecting, Permafrost physics, Permafrost structure, Electrical properties, Geological cross sections.

34-3240
Thermal interaction of pipelines with the ground.
Garagulia, L.S., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.103-116, 10 refs. For Russian original see 32-3750.
Parmuzin, S.IU., Spiridonov, V.V., Tsurikov, A.S.
Pipelines, Frozen ground temperature, Permafrost heat transfer, Seasonal freeze thaw.

34-3241
Present state of research on the freezing of rocks and construction materials.
Aguirre-Puente, J., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.117-132, 62 refs. For French original see 32-3752.
Soil freezing, Frost penetration, Construction materials, Freeze thaw cycles, Frozen rock temperature.

34-3242
Ice rich soils as bases for structures.
Dokuchaev, V.V., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.133-147, 6 refs. For Russian original see 32-3757.
Artemov, Z.P., Sheinkman, D.R.
Pile structures, Foundations, Settlement (structural), Permafrost beneath structures, Ground ice, Design.

34-3243
Problems and possibilities of studying the processes of dynamic relaxation in frozen earth materials.
Frolov, A.D., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.149-167, 18 refs. For Russian original see 32-3759.
Ground ice, Frozen ground physics, Electrical properties, Relaxation spectroscopy.

34-3244
On the role of the components of frozen clay soils in the development of strength at different temperatures.
Maksimiak, R.V., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.169-183, 15 refs. For Russian original see 32-3765.
Shusherina, E.P., Rogov, V.V., Zabolotskaia, M.I.
Frozen fines, Clay soils, Ground ice, Soil composition, Frozen ground strength, Microstructure.

34-3245
Kinetic theory of deformation of frozen soils.
Vialov, S.S., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.185-197, 5 refs. For Russian original see 32-3774.
Frozen ground mechanics, Frozen ground temperature, Deformation, Creep properties, Analysis (mathematics).

34-3246
Permafrost investigations in pipeline construction.
Baulin, V.V., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.199-212, For Russian original see 32-3777.
Dubikov, G.I., Uvarkin, IU.T., Garagulia, L.S., Spiridonov, V.V.
Pipelines, Permafrost beneath structures, Surveying, Permafrost forecasting.

34-3247
Characteristics of the construction of frozen dams in Western Yakutia.
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Hydraulic structures, Dams, Permafrost beneath structures, Permafrost control, Artificial freezing, USSR—Yakutia.

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Seasonally operating units and their use in northern construction.
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Kuznetsov, A.L., Gapeev, S.I.
Permafrost beneath structures, Permafrost control, Artificial freezing, Cooling systems.

34-3249
Construction of multi-storey buildings on cold piles in the city of Mirnyy.
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Plotnikov, A.A., Chumaevskii, B.F.
Pile structures, Permafrost beneath structures, Foundations, Buildings, Frozen ground temperature, Artificial freezing, Cooling systems, Thermopiles.

34-3250
Strength and stability of railway subgrades in permafrost regions.
Peretrukhin, N.A., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.255-267, 11 refs. For Russian original see 32-3788.
Railroads, Embankments, Subgrade soils, Permafrost beneath structures, Design.

34-3251
Construction of earth embankments for highways in West Siberia.
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Roads, Embankments, Permafrost beneath structures, Pavements, Swamps, Peat, Thermal insulation, Cellular plastics.

34-3252
Construction by the method of stabilizing perennially frozen foundation soils.
Porkhaev, G.V., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.283-296, 5 refs. For Russian original see 32-3790.
Buildings, Foundations, Permafrost beneath structures, Active layer, Permafrost control, Artificial freezing, Thermopiles, Ventilation, Crawl spaces.

34-3253
Long-term settlement of foundations on permafrost.
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Foundations, Permafrost beneath structures, Frozen rock temperature, Settlement (structural), Tests.

34-3254
Hydrodynamic and hydrochemical assessment of explosions used in testing low-output wells in permafrost regions.
Maksimov, V.M., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.313-320, 8 refs. For Russian original see 32-3797.
Water supply, Wells, Suprapermafrost ground water, Subpermafrost ground water, Blasting, Hydrodynamics, Water chemistry.

34-3255
Stability of underground workings in permafrost.
El'chaninov, E.A., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.321-337, 2 refs. For Russian original see 32-3799.
Shor, A.I., Rozenbaum, M.A.
Earthwork, Mining, Frozen rock temperature, Temperature control, Shafts (excavations), Walls, Stability.

34-3256
Water thawing of frozen ground for open pit and underground mining in the northeast of the USSR.
Emel'ianov, V.I., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.339-354, 15 refs. For Russian original see 32-3800.
Perl'shtein, G.Z.
Earthwork, Artificial thawing, Mining, Ground thawing, Analysis (mathematics).

34-3257
Permafrost-hydrogeological zoning of eastern Siberia.
Mel'nikov, P.I., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.355-378, 15 refs. For Russian original see 34-1680.
Tolstikhin, O.N.
Permafrost distribution, Hydrogeology, Geocryology.

34-3258
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Vialov, S.S., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.379-406, 6 refs. For Russian original see 34-1683.
Foundations, Deformation, Permafrost beneath structures, Piles, Thermal analysis.

34-3259
Design, construction and operation of earth dams in Arctic regions and under permafrost conditions.
Tsytovich, N.A., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.407-428, 30 refs. For Russian original see 34-1684.
Kronik, IA.A., Biianov, G.F.
Earth dams, Permafrost beneath structures, Cold weather construction.

34-3260
Nature and importance of mass-wasting by rock glaciers in alpine permafrost environments.
Barsch, D., *Earth surface processes*, Apr.-Sep. 1977, 2(3), p.231-245, 34 refs.
Rock glaciers, Alpine glaciation, Permafrost, Talus, Glacier mass balance, Glacier flow.

34-3261
Development of a laboratory set-up to measure creep induced by freeze-thaw cycles.
Steijn, H. van, *Earth surface processes*, Apr.-Sep. 1977, 2(3), p.247-250, 12 refs.
Soil creep, Freeze thaw cycles, Rheology, Frozen ground mechanics, Tests.

34-3262
Factors relating to the landslide process in Canadian Quickclays.
Smalley, I., *Earth surface processes*, Apr.-June 1976, 1(2), p.163-172, 50 refs.
Clay soils, Soil mechanics, Slope stability, Rheology, Quaternary glaciation, Postglacial soils.

34-3263
Simplified model for prediction of nitrogen behavior in land treatment of wastewater.
Selim, H.M., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Apr. 1980, CR 80-12, 49p., ADA-085 191, 23 refs.
Iskandar, I.K.
Waste treatment, Water treatment, Nutrient cycle, Soil chemistry, Nitrogen.
A simplified model for simulation of nitrogen transformations and transportation in land treatment of wastewater is presented. The purpose of the model is to predict the behavior of NH4-N and NO3-N in the soil profile in land treatment systems. The program is based on the solution of the transient soil water flow equation simultaneously with the equations describing the transformation, transport, and plant uptake of nitrogen in the soil. The program is valid for uniform as well as multilayered soil profiles and can be adapted to incorporate various nitrogen transformation mechanisms and boundary conditions. The model can be used as a tool to predict the fate of nitrogen in land treatment systems. Model sensitivity to changes in the rate of nitrification, ammonium ion exchange, and rate of plant uptake of nitrogen is also described. Description of the computer program, the program listing, and an example of input data and a two-week computer simulation of output data are presented.

34-3264
Freezing temperature of aqueous solutions containing formamide, acetamide, propionamide and N,N-dimethylformamide.
Lilley, T.H., et al, *Journal of physical chemistry*, 1980, 76(4), p.901-905, 8 refs.
Wood, R.H.
Solutions, Freezing points, Thermodynamics, Enthalpy, Heat capacity.

34-3265
Design of concrete structures for thermal effects.
Pajuhesh, J., *American Concrete Institute. Journal*, Mar.-Apr. 1980, No.2, p.74-77, 3 refs.
Concrete structures, Thermal effects, Relaxation (mechanics), Analysis (mathematics).

34-3266
Zero-energy house: bold, low-cost breakthrough that may revolutionize housing.
Dallaire, G., *Civil engineering*, May 1980, 52(5), p.47-59, 5 refs.
Thermal insulation, Houses, Heat loss.

34-3267
Natural waters, lithogenesis and relief. [Prirodnye vody, porodoobrazovanie i rel'ef].
Zorin, L.V., Moscow, Nauka, 1979, 167p., In Russian with English table of contents enclosed. Refs. p.155-166.
Glacial deposits, Glacial erosion, Moraines, Sedimentation, Permafrost origin, Ground ice, Permafrost hydrology, Permafrost weathering, Glaciers.

34-3268
Gramna Lakes in the Baykal Amur railroad area. [Gramninskie ozera v zone vliianiia trassy BAM].
Mats, V.D., et al, Novosibirsk, Nauka, 1980, 87p., In Russian with English table of contents enclosed. 43 refs.
Glacial deposits, Moraines, Glacial lakes, Limnology, Subglacial observations, Baykal Amur railroad, Alpine landscapes, Taiga, Alpine tundra, Plant ecology, USSR—Baykal Range.

34-3269
Manual for designing water supply and sewage systems in permafrost areas. [Spravochnik po proektirovaniiu sistem vodosnabzheniia i kanalizatsii v raionakh vechnomerzlykh gruntov].
Fedorov, N.F., et al, Leningrad, Stroiizdat, 1979, 159p., In Russian with English table of contents enclosed. 22 refs.
Zaborshchikov, O.V.
Manuals, Water treatment, Water supply, Waste disposal, Sewage, Sewage treatment, Pipelines, Pipe laying, Permafrost beneath structures, Design.

34-3270
Soil stabilization and water impervious screens in hydroelectric engineering. [Zakreplenie gruntov i protivofil'tratsionnye zavesy v gidroenergeticheskom stroitel'stve].
Adamovich, A.M., Moscow, Energiia, 1980, 319p., In Russian with English table of contents enclosed. 197 refs.
Earth dams, Waterproofing, Artificial freezing, Winter concreting, Grouting, Electric power, Cold weather construction, Hydraulic structures, Dams, Concrete structures.

34-3271
Meteorological research.
Borisenkov, E.P., ed, Washington, Transemantics, July 1976, 133p., N76-27786, Translation of meteorologicheskie issledovaniia, No.20, 1975. For individual articles see F-23319 through F-23323 and I-23324, or 34-3272 through 34-3276. For Russian original see 9F-16958 through 9F-16962 and 9I-16963, or 30-3940 through 30-3944. Refs. passim.
Sea ice distribution, Spacecraft, Antarctica.
This collection of works contains material dealing with the utilization of meteorological satellites for the investigation of polar regions. In it, light is thrown on questions pertaining to the use of microwave equipment for investigating Atlantic ice and for determining the temperature of the underlying surface, the use of television equipment for the determination of cloud and ice fields in the Arctic and Antarctic regions, as well as for the comprehensive analysis of landscapes, the use of data on outgoing radiation for the determination of average-temperature fields and the restoration of aerological data, questions pertaining to identification and geographic control of the data. (Auth.)

34-3272
Antarctic ice characteristics according to *Kosmos-243* satellite radiometric measurements.
Matveev, D.T., Meteorological research, Washington, Transemantics, July 1976, p.5-12, N76-27786. For Russian original see 9F-16958 or 30-3940.
Sea ice distribution, Spacecraft, Radiometry, Antarctica.

Experimental data are presented on antarctic ice characteristics through measurements carried out from the *Cosmos-243* satellite. Heat radiation measurements were done in the 0.8 cm, 1.34 cm, 3.4 cm and 8.5 cm bands. The results are compared with average data on the position of the ice barrier. (Auth.)

34-3273
Characteristics of the antarctic temperature field according to *Kosmos 243* satellite radiometric measurements.
Kurskaia, A.A., Meteorological research, Washington, Transemantics, July 1976, p.13-20, N76-27786, For Russian original see 9F-16959 or 30-3941. 2 refs.
Sea ice, Ice shelves, Ice sheets, Ice temperature, Radiometry, Spacecraft, Antarctica.
Experimental data are presented and an analysis made of radiobrightness temperatures above the ice sheet of Antarctica according to *Cosmos-243* data. A considerable inhomogeneity of the temperature field is shown. (Auth.)

34-3274
Ice environment of the antarctic region according to *Cosmos-226* satellite data.
Leont'eva, A.V., Meteorological research, Washington, Transemantics, July 1976, p.21-28, N76-27786, For Russian original see 9F-16960 or 30-3942.
Sea ice distribution, Antarctica.
A photomontage of ice conditions in the Antarctic is presented. It is composed from television pictures taken by *Cosmos-226* in November 1968. A short description of the state of ice is given and peculiarities of the photographic images are noted. (Auth.)

34-3275
Ice conditions in the Antarctic in the summer of 1968-1969.
Provotkin, A.V., et al, Meteorological research, Washington, Transemantics, July 1976, p.29-44, N76-27786, For Russian original see 9F-16961 or 30-3943.
Dubrovin, L.I.
Sea ice distribution, Antarctica.
Average monthly charts of ice conditions in the Southern Ocean in Nov. and Dec. 1968 and Jan. 1969 are compiled according to television pictures taken from the *Cosmos-226* satellite. The results of the interpretation of the photos show marked changes in the contours in several sections of the antarctic coast. (Auth.)

34-3276
Ice mesovortices in the nearshore regions of East Antarctica.
Preobrazhenskaia, T.N., Meteorological research, Washington, Transemantics, July 1976, p.45-54, N76-27786, For Russian original see 9F-16962 or 30-3944.
Sea ice distribution, Ocean currents, Atmospheric circulation, Antarctica—East Antarctica.
The article deals with the results of a study of meso- and microvortices in the coastal regions of Antarctica according to meteorological satellite data. Vortices of the second type are related to the peculiarities and orography of the glacier slope. These vortices present accumulations of snow and ice drawn in by winds blowing from the continent. (Auth.)

34-3277
Environmental protection in economic development of permafrost areas. [Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod],
Grave, N.A., ed, Moscow, Nauka, 1980, 140p., In Russian. For individual papers see 34-3278 through 34-3300. Refs. passim.
Environmental protection, Human factors engineering, Permafrost forecasting, Tundra, Forest tundra, Taiga, Soil erosion, Permafrost transformation, Urban planning, Construction, Mining.

34-3278
Forecasting changes in geocryologic conditions during economic development of permafrost areas. [Prognoz izmeneniia geokriologicheskikh uslovii pri proizvodstvennom osvoenii territorii v oblasti rasprostraneniia mnogoletnemerzlykh porod],
Kudriavtsev, V.A., Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.5-12, In Russian.
Permafrost forecasting, Environmental protection, Human factors engineering.

34-3279
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Grechishchev, S.E., et al, Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.12-19, In Russian. 3 refs.
Permafrost forecasting, Environmental protection, Taiga, Human factors, Analysis (mathematics).

34-3280
Studying changes in permafrost conditions due to construction in the Ust'-Ilimsk area. [Izuchenie izmeneniia merzlotnykh uslovii v khode osvoeniia territorii (na primere g. Ust'-Ilimska)],
Maksimova, L.N., et al, Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.19-25, In Russian.
Boiarskii, O.G., Dubrovin, V.A.
Human factors engineering, Permafrost transformation, Permafrost forecasting, Environmental protection, Urban planning, Microclimatology.

34-3281
Making artificial intergelisols as a means of environmental protection in petroleum provinces of West Siberia and the northern Komi ASSR. [Ustroistvo iskusstvennykh pereletkov v Zapadnoi Sibiri i na severe Komi ASSR kak meropriiatie po sokhraneniiu prirodnoi sredy v raionakh neftianykh promyslov],
Maksimov, G.N., Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.25-27, In Russian. 4 refs.
Swamps, Drilling, Roads, Peat, Artificial freezing, Petroleum industry.

34-3282
Protection of environments and mineral resources in mined permafrost areas. [Voprosy okhrany okruzhaiushchei sredy i nedr pri osvoenii mestorozhdenii poleznykh iskopaemykh v oblasti mnogoletnei merzloty],
Maksimov, V.M., et al, Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.27-36, In Russian
Mining, Coal, Placer mining, Environmental protection, Permafrost control, Permafrost hydrology, Petroleum industry, Drilling, Permafrost beneath structures.

34-3283
Changes in geocryological conditions and permafrost forecasting in areas of mining exploration. [Izmenenie geokriologicheskoi obstanovki na osvaivaemykh uchastkakh i ego prognoz pri razvedke mestorozhdenii poleznykh iskopaemykh],
Shvetsov, P.F., et al, Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.36-41, In Russian. 14 refs.
Bobov, N.G.
Mining, Active layer, Permafrost forecasting, Environmental protection, Permafrost control, Exploration.

34-3284
Rational utilization of engineering and geological resources. [Problema ratsional'nogo ispol'zovaniia inzhenerno-geologicheskikh resursov],
Demidiuk, L.M., Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.42-50, In Russian.
Environmental protection, Mining, Construction, Permafrost hydrology, Permafrost beneath structures, Permafrost control.

34-3285
Environmental protection problems related to placer mining in the North. [Nekotorye voprosy okhrany okruzhaiushchei sredy v sviazi s razrabotkoi rossypnykh mestorozhdenii Severa],
Olovin, B.A., Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.50-55, In Russian.
Placer mining, Transportation, Environmental protection, Soil erosion, Taiga, Tundra.

34-3286
Some technical solutions for environmental protection of construction and mining sites in permafrost areas. [Nekotorye tekhnicheskie resheniia po okhrane okruzhaiushchei sredy pri stroitel'stve i ekspluatatsii gornodobyvaiushchikh predpriiatii v raionakh mnogoletnei merzloty],
El'chaninov, E.A., et al, Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.55-60, In Russian.
Shor, A.I.
Environmental protection, Construction, Mining, Human factors engineering, Permafrost transformation.

34-3287
Environmental protection problems on pipeline construction sites. [Problemy sokhraneniia okruzhaiushchei sredy pri stroitel'stve truboprovodov],
Spiridonov, V.V., et al, Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.60-66, In Russian.
Semenov, L.P.
Permafrost beneath structures, Human factors engineering, Environmental protection, Pipelines, Roads, Buildings.

34-3288
Consequences of the disturbance of natural environments by the construction of linear structures in northern West Siberia. [Narusheniia prirodnoi sredy i ikh posledstviia pri stroitel'stve lineinykh sooruzhenii na severe Zapadnoi Sibiri],
Sukhodol'skii, S.E., Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.67-71, In Russian.
Permafrost beneath structures, Taiga, Forest tundra, Environmental protection, Pipelines, Roads, Railroads.

34-3289
Typical natural environment disturbances in northern West Siberia due to construction of linear structures and forecasts of their development. [Tipichnye narusheniia prirodnykh kompleksov severa Zapadnoi Sibiri pod vliianiem lineinogo stroitel'stva i prognoz ikh dinamiki],
Moskalenko, N.G., et al, Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.71-78, In Russian. 7 refs.
Shur, Iu.L.
Permafrost beneath structures, Taiga, Swamps, Environmental protection, Pipelines, Roads.

34-3290
Environmental protection problems on the Baykal Amur railroad construction sites. [Problemy okhrany okruzhaiushchei sredy pri dorozhnom stroitel'stve (na primere Baikalo-Amurskoi magistrali)],
Alekseev, V.R., et al, Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.78-84, In Russian.
Lugovoi, P.N., Mikhailov, N.A., Sokolov, A.A.
Permafrost beneath structures, Permafrost preservation, Environmental protection, Baykal Amur railroad.

34-3291
Design of roads and railroads on natural bases in the southern permafrost distribution zone. [Ispol'zovanie estestvennykh osnovanii pri proektirovanii zemlianogo polotna zheleznykh i avtomobil'nykh dorog v iuzhnoi zone rasprostraneniia mnogoletnemerzlykh gruntov],
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Design, Roadbeds, Embankments, Permafrost bases, Roads, Railroads.

34-3292
Environmental protection problems related to the construction of embankments and porous fills on permafrost. [Voprosy okhrany okruzhaiushchei sredy v sviazi s ustroistvom nasypei i poristykh podsypok na vechnomerzlykh gruntakh].
Kaganovskaia, S.E., Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.90-94, In Russian. 4 refs.
Swamps, Roads, Embankments, Rock fills, Permafrost beneath structures, Environmental protection.

34-3293
Influence of cities on natural and climatic factors under polar conditions. [Vliianie goroda na prirodno-klimaticheskie faktory v usloviiakh Zapoliar'ia].
Gorbacheva, V.M., Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.94-99, In Russian. 5 refs.
Urban planning, Permafrost beneath structures, Buildings, Roads, Permafrost control, Human factors engineering.

34-3294
Influence of economic development on changes in environmental conditions of Arctic regions. [Vliianie khoziaistvennoi deiatel'nosti na izmenenie prirodnykh uslovii arkticheskikh oblastei].
Neizvestnov, IA.V., et al, Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.100-102, In Russian. 2 refs.
Postnov, I.S.
Human factors, Sewage disposal, Thermokarst development, Polar regions.

34-3295
Protecting rivers in the Kolyma Basin from pollution with solid suspensions by electrochemical coagulation treatment of mining waste waters. [Zashchita rek basseina Kolymy ot zagriazneniia tverdymi vzvesiami (na primere ochistki tekhnologicheskikh vod priiskov metodom elektrokhimicheskoi koaguliatsii)].
Novozhilov, V.N., et al, Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.102-107, In Russian.
Dvoskin, G.A., Kotova, M.S., Shemiakin, V.N.
Human factors engineering, Mining, Waste disposal, Water treatment, Water pollution, Subarctic landscapes.

34-3296
Cryogenic hydrogeochemical changes in alluvial deposits due to economic development of Central Yakutia. [Kriogennye gidrogeokhimicheskie izmeneniia alliuvial'nykh otlozhenii pri khoziaistvennom osvoenii Tsentral'noi IAkutii].
Anisimova, N.P., Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.107-111, In Russian. 3 refs.
Economic development, Human factors engineering, Permafrost weathering, Permafrost hydrology, Permafrost control, USSR—Yakutia.

34-3297
Restoration of natural landscapes disturbed by human activities. [Rekul'tivatsiia narushennykh v rezul'tate deiatel'nosti cheloveka prirodnykh landshaftov].
Liverovskii, IU.A., et al, Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.111-115, In Russian.
Popov, A.I., Smirnov, V.V.
Environmental protection, Soil erosion, Human factors engineering, Revegetation, Polar regions.

34-3298
Changes in the properties of soils in the eastern foothills of the Polar Ural Mountains and the adjacent plain caused by construction of linear structures. [Izmenenie svoistv pochv vostochnykh predgorii Poliarnogo Urala i prilegaiushchei ravniny v sviazi so stroitel'stvom lineinogo sooruzheniia].
Liverovskaia, I.T., Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.116-121, In Russian. 9 refs.
Permafrost beneath structures, Soil erosion, Revegetation, Environmental protection, Roads, Pipelines.

34-3299
Disturbance of natural environments by construction of linear structures and the first stages of restoration of soil and vegetational covers. [Narusheniia prirodnoi sredy i pervye stadii vosstanovleniia pochvenno-rastitel'nogo pokrova pri nekotorykh vidakh lineinogo stroitel'stva].
Smirnov, V.V., et al, Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.121-127, In Russian. 4 refs.
Environmental protection, Revegetation, Tundra, Forest tundra, Soil erosion, Polar regions.

34-3300
Root systems of sodding plants and their role in the restoration of vegetational cover disturbed by economic activities. [Kornevye sistemy rastenii-zadernitelei i ikh znachenie dlia vosstanovleniia rastitel'nogo pokrova narushennogo pri khoziaistvennom osvoenii territorii].
Vital', A.D., Okhrana okruzhaiushchei sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.128-133, In Russian. 6 refs.
Tundra, Forest tundra, Human factors engineering, Soil erosion, Revegetation, Arctic landscapes.

34-3301
Telemeasurement of ice cover parameters. [Distantsionnye izmereniia parametrov ledianogo pokrova].
Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy, 1977, Vol.343, 154p., In Russian. For individual papers see 34-3302 through 34-3318. Refs. passim.
Ice surveys, Ice reporting, Radar photography, Telemetering equipment, Side looking radar, Infrared equipment, Spaceborne photography, Arctic Ocean.

34-3302
Automatically controlled ice information system for the Arctic (ALISA). [Avtomatizirovannaia ledovo-informatsionnaia sistema dlia Arktiki (ALISA)].
Bushuev, A.V., et al, *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1977, Vol.343, p.6-16, In Russian. 4 refs.
Ice navigation, Ice reporting, Ice surveys, Telemetering equipment, Design, Arctic Ocean.

34-3303
External orientation of satellite scanning radiometer photographs. [Opredelenie elementov vneshnego orientirovaniia snimkov skaniruiushchikh radiometrov ISZ].
Bushuev, A.V., *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1977, Vol.343, p.17-25, In Russian. 4 refs.
Radar photography, Spaceborne photography, Photointerpretation, Orientation, Ice surveys.

34-3304
Determining ice cover characteristics from spaceborne photographs of scanning infrared radiometers. [Opredelenie kharakteristik ledianogo pokrova po sputnikovym snimkam skaniruiushchikh infrakrasnykh radiometrov].
Masanov, A.D., *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1977, Vol.343, p.26-33, In Russian. 7 refs.
Spaceborne photography, Radar photography, Photointerpretation, Infrared equipment, Radiometry.

34-3305
Compiling ice maps from photographs made by meteorological satellites. [Ispol'zovanie snimkov poluchennykh s meteorologicheskikh sputnikov v kachestve osnovy dlia sostavleniia ledovykh kart].
Provorkin, A.V., *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1977, Vol.343, p.34-39, In Russian.
Spaceborne photography, Ice surveys, Charts, Ice navigation.

34-3306
Using microwave satellite measurements for mapping sea ice. [Ispol'zovanie mikrovolnovykh sputnikovykh izmerenii dlia kartirovaniia morskikh l'dov].
Loshchilov, V.S., *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1977, Vol.343, p.40-45, In Russian. 7 refs.
Sea ice, Mapping, Ice navigation, Spaceborne photography, Radar photography, Ice surveys.

34-3307
Analytic coordination of areal and route radar surveys. [Analiticheskoe koordinirovanie ploshchadnykh i marshrutnykh radiolokatsionnykh s"emok].
Bushuev, A.V., *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1977, Vol.343, p.46-57, In Russian. 4 refs.
Drift, Radar photography, Side looking radar, Ice surveys, Sea ice.

34-3308
Accuracy of geographic correlation of *Toros* side looking radar photographs. [Tochnost' geograficheskoi priviazki snimkov radiolokatsionnoi stantsii bokovogo obzora "Toros"].
Borisov, R.A., et al, *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1977, Vol.343, p.58-64, In Russian. 3 refs.
Bychenkov, IU.D.
Ice surveys, Aerial surveys, Sea ice.

34-3309
Operational analysis of the drift and deformation of ice cover from repeated areal radar survey photographs. [Operativnyi analiz dreifa i deformatsii ledianogo pokrova po materialam povtornykh radiolokatsionnykh ploshchadnykh s"emok].
Borisov, R.A., et al, *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1977, Vol.343, p.65-74, In Russian. 5 refs.
Loshchilov, V.S.
Sea ice, Drift, Ice deformation, Ice surveys, Radar photography.

34-3310
Data on medium-scale deformations of ice covers in Arctic seas. [Nekotorye dannye o srednemasshtabnoi deformatsii ledianogo pokrova arkticheskikh morei].
Gorbunov, IU.A., et al, *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1977, Vol.343, p.75-91, In Russian. 7 refs.
Losev, S.M.
Sea ice, Ice deformation, Drift, Ice surveys.

34-3311
Studying morphometric characteristics of summer ice cover in Arctic seas. [Ob issledovanii nekotorykh morfometricheskikh kharakteristik ledianogo pokrova v arkticheskikh moriakh v letnii period].
Losev, S.M., et al, *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1977, Vol.343, p.92-103, In Russian. 6 refs.
Gorbunov, IU.A.
Sea ice, Drift, Ice deformation, Ice surveys, Aerial surveys, Side looking radar.

34-3312
Video-pulse radiometer of sea ice thickness as a promising means of ice surveying. [Radiolokatsionnyi videoimpul'snyi izmeritel' tolshchiny morskogo l'da kak novoe perspektivnoe sredstvo ledovoi razvedki].
Finkel'shtein, M.I., et al, *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1977, Vol.343, p.104-113, In Russian. 7 refs.
Lazarev, E.I.
Sea ice, Ice surveys, Ice cover thickness, Ice surface, Surface roughness, Ice salinity, Radar echoes.

34-3313
Using radar equipment for measuring ice cover thickness in ice surveys. [Nekotorye rezul'taty ispol'zovaniia radiolokatsionnogo videoimpul'snogo izmeritelia tolshchiny morskogo l'da dlia ledovoi razvedki].
Bushuev, A.V., et al, *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1977, Vol.343, p.114-121, In Russian. 3 refs.
Lazarev, E.I., Finkel'shtein, M.I.
Sea ice, Ice surveys, Ice cover thickness, Radar echoes.

34-3314
Airborne laboratory for studying White Sea ice. [Issledovanie morskikh l'dov Belogo moria s pomoshch'iu letaiushchei laboratorii].
Kurskaia, A.A., *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1977, Vol.343, p.122-126, In Russian.
Sea ice, Ice surveys, Airborne equipment.

34-3315
Studying grounded ice hummocks from aerial photographs. [Izuchenie stamukh po aerofotosnimkam],
Losev, S.M., et al, *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1977, Vol.343, p.127-132, In Russian. 5 refs.
Gorbunov, IU.A.
Sea ice, Ice surveys, Photography, Airborne equipment.

34-3316
Shifting of ice edges and ice cover boundaries. [O smeshchenii kromok l'da i granits ledianogo massiva].
Gorbunov, IU.A., et al, *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut Trudy*, 1977, Vol.343, p.133-140, In Russian 3 refs.
Losev, S.M.
Sea ice, Drift, Ice edge, Aerial surveys, Ice surveys, Ice forecasting.

34-3317
Testing a numerical scheme for calculating winter ice distribution in Arctic seas. [Rezul'taty ispytaniia chislennoi skhemy rascheta raspredeleniia l'da v arkticheskikh moriakh zimoi].
Appel', I.L., et al, *Leningrad Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut Trudy*, 1977, Vol.343, p.141-150, In Russian 5 refs.
Gudkovich, Z.M., Teitel'baum, K.A.
Sea ice, Ice surveys, Drift, Ice cover thickness, Ice surface, Pressure ridges, Arctic Ocean.

34-3318
Using statistical characteristics of radar photographs of ice covers for their recognition. [Ispol'zovanie statisticheskikh kharakteristik radiolokatsionnykh izobrazhenii l'dov dlia ikh raspoznavaniia].
Aleksandrov, V.IU., et al, *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1977, Vol.343, p.151-154, In Russian. 4 refs.
Bushuev, A.V.
Ice surveys, Sea ice, Radar photography, Side looking radar, Photointerpretation, Computer applications.

34-3319
Backscatter and emission of snow: literature review and recommendations for future investigations.
Ulaby, F.T., et al, Remote Sensing Laboratory, RSL Technical Report 369-1, Lawrence, University of Kansas Center for Research, Inc., June 1978, 138p., 3 refs.
Fung, A.K., Stiles, W.H.
Backscattering, Snow electrical properties, Snow cover effect, Microwaves, Dielectric properties.

34-3320
Variability of the tide at some sites in the Canadian Arctic.
Godin, G., et al, *Arctic*, Mar. 1980, 33(1), p.30-37, 7 refs., In English with French summary.
Barber, F.G.
Tides, Ice cover effect, Sea ice.

34-3321
Classification of the vegetation of Boothia Peninsula and the northern District of Keewatin, N.W.T.
Thompson, D.C., *Arctic*, Mar. 1980, 33(1), p.73-99, 30 refs., In English with French summary.
Vegetation, Polar regions, Classifications, Canada—Northwest Territories—Keewatin District, Canada—Northwest Territories—Boothia Peninsula.

34-3322
Illustration of the roles of snow in the evolution of the winter cover of a lake.
Adams, W.P., et al, *Arctic*, Mar. 1980, 33(1), p.100-116, 12 refs., In English with French summary.
Roulet, N.T.
Ecosystems, Snow cover effect, Ice cover effect, Lake ice.

34-3323
Floating ice platforms for oil exploration in the Arctic Islands.
Ekelund, M.J., et al, *Arctic*, Mar. 1980, 33(1), p.168-183, 12 refs., In English with French summary.
Masterson, D.M.
Floating ice, Ice islands, Offshore drilling, Oil recovery, Ice creep, Ice deformation, Artificial islands, Loads (forces), Static loads.

34-3324
Ice spirals off Barrow as seen by satellite.
Solomon, H., et al, *Arctic*, Mar. 1980, 33(1), p.184-188, 7 refs., In English with French summary.
Ahlnäs, K.
Sea ice distribution, Topographic features, Pack ice, Ice edge, Ocean currents, Remote sensing, United States—Alaska—Barrow.

34-3325
Wastewater treatment in cold regions by overland flow.
Martel, C.J., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb 1980, CR 80-7, 14p., ADA-084 489, 16 refs.
Jenkins, T.F., Palazzo, A.J.
Waste treatment, Water treatment, Irrigation, Cold weather performance, Engineering, Soil chemistry, Agriculture.
Primary effluent, secondary effluent (package extended aeration plant effluent with BOD's often greater than 30 mg liter) and tapwater were applied to separate sections of a pilot-scale overland flow site in a cold regions environment The average application rate for each section was 5.0 cm (2.0 in.) per week Performance was evaluated for one year, May 1977 to June 1978 Results of this study demonstrated that overland flow can renovate both primary and secondary effluent during spring, summer and fall seasons However, during winter, runoff water quality from the primary section contained almost no pollutants during its entire operation Ammonia was the easiest form of nitrogen to remove and nitrate was the most difficult Rainstorms did not cause a "flushing" effect However, ammonia and nitrate concentrations in the runoff increased during snowmelt The forage yield from the primary and secondary sections was almost twice that of a typical New Hampshire hayfield Wastewater application during winter caused only minor cases of plant injury Based on these results, a minimum of 30 days of storage is recommended if overland flow is used as a polishing process If overland flow is used to treat primary effluent, the number of storage days predicted by EPA-1 computer program appears to be adequate

34-3326
High-explosive cratering in frozen and unfrozen soils in Alaska.
Smith, N., *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, CR 80-9, 21p., ADA-084 702, 8 refs.
Frozen ground mechanics, Explosion effects, Seasonal freeze thaw, Taliks, Excavation, Tests.
Explosive cratering tests were conducted in seasonally frozen and thawed gravel at Ft Richardson near Anchorage, Alaska, and in seasonally frozen and thawed silt overlying permafrost and in silt permafrost at Ft Wainwright near Fairbanks, Alaska Explosive charge weights ranged from 26 to 3120 lb, and charge burial depths ranged from about 3 to 40 ft. The cube root of the charge weight scaling was used to determine maximum scaled crater dimensions and optimum scaled depth of burial of the charge Test results for frozen and thawed gravel were essentially the same because of the low moisture content and the relatively shallow depth of freezing (5 to 6 ft) The optimum depth of burial of the charge for maximizing the apparent radius and depth and the true radius was about 1.8 times the cube root of the charge weight for both the frozen and thawed conditions. In seasonally frozen silt overlying a talik and silt permafrost, the maximum scaled crater dimensions and optimum scaled burial depths of the charge were smaller than for the thawed condition except for the true crater dimensions. The channeling of energy in the talik produces maximum crater dimensions and an optimum burial depth for the true crater that is larger than for the thawed condition. The results for the homogeneous silt permafrost were very similar to the frozen gravel results, with much smaller maximum crater dimensions and smaller optimum charge burial depths than for the thawed silt overlying permafrost

34-3327
Roof leaks in cold regions: school at Chevak, Alaska.
Tobiasson, W., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Apr. 1980, CR 80-11, 12p. ADA-084 914.
Johnson, P.R.
Roofs, Leakage, Buildings, Meltwater, Snow accumulation, Condensation, Subpolar regions.
Four types of roof leaks occurred at a new school building in Chevak, Alaska: 1) blowing snow entered the roof through eave vents and then melted, 2) slush and ice in roof valleys caused meltwater to overflow the valley flashing and run into the building, 3) water entered at a roof/wall intersection and 4) in many areas water entered through gaps in the sloping plywood deck Sealing the eave vents made it impossible for blowing snow to enter the roof at the eaves. Electric heat tapes eliminated the valley icing problem. Missing flashing was responsible for the roof-wall intersection leaks. The absence of a vapor barrier in the roof was the cause of many leaks. It was recommended that the roof be repaired from the exterior by removing component elements down to the plywood deck, installing an adhered continuous vapor barrier and reassembling the roof An alternative roof cladding of composition shingles was discussed as was conversion to a "cold roof." The roof was repaired and modified following recommendations, and problems appear to have been solved.

34-3328
Coastal environment, bathymetry, and physical oceanography along the Beaufort, Chukchi and Bering Seas.
Gatto, L.W., *U.S. Army Cold Regions Research and Engineering Laboratory*, Jan. 1980, SR 80-5, 357p., ADA-084 281, 56 refs.
Coastal topographic features, Bathymetry, Marine geology, Shoreline modification, Oceanography, Environments.
The report compiles references, figures and tables that are concerned with the coastal environment, bathymetry, and physical oceanography along the Beaufort, Chukchi, and Bering Seas The text, intentionally minimized, describes the salient points with a minimum of detail The extensive references and figures give direction to a reader seeking additional information

34-3329
Documentation for a two-level dynamic thermodynamic sea ice model.
Hibler, W.D., III, *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, SR 80-8, 35p., ADA-084 273, 9 refs.
Sea ice, Ice thermal properties, Thermodynamic properties, Heat transfer, Ice mechanics, Ice cover thickness, Mathematical models, Computer programs, Rheology.
A discussion of the numerics and computer code for a two-level dynamic thermodynamic sea ice model is presented For interested users a listing of the computer code and results from a 21-day test run are included as appendices To a large degree this report is meant to serve as an extended appendix to an article by the author in the Journal of Physical Oceanography (see 34-741) describing his model and a variety of simulation results The model consists of a two-level ice thickness distribution coupled to the ice dynamics by a plastic rheology In addition to the ice interaction the momentum balance includes nonlinear wind and water drag terms, Coriolis force, and inertial and momentum advection terms The numerical scheme is formulated in an energy-conserving manner in a fixed Eulerian grid which allows simulation over unlimited time intervals The momentum balance (including inertial terms) is numerically treated in a semi-implicit manner so that time steps of up to one day in length may be used if desired The boundaries, grid size and time step magnitude are easily modified so that the model should have application to a variety of climate and forecasting problems

34-3330
Ice thickness-tensile stress relationship for load-bearing ice.
Johnson, P.R., *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, SR 80-9, 11p., ADA-084 274, 3 refs
Ice cover strength, Ice loads, Ice crossings, Ice roads, Tensile properties, Stresses, Ice cover thickness.
The "bearing capacity" of a floating ice sheet is of considerable interest The pattern of ice thickness vs tensile stress for a fixed load and fixed ice properties was examined and showed some constant relationships It proved possible to completely describe the ice thickness-tensile stress pattern in terms of a single number When the load was changed by increasing the payload but not altering the geometry of the load pattern, other relationships were found that described the tensile stress in the ice sheet for any combination of payload and ice thickness This provides a simple method of finding tensile stress in the ice that can be used in the field. Further studies are planned

34-3331
Operation of the CRREL prototype air transportable shelter.
Flanders, S.N., *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, SR 80-10, 73p. ADA-084 275.
Portable shelters, Cold weather performance, Transportation, Airplanes, Logistics.
This report describes the operation of the CRREL prototype air-transportable shelter which was designed specifically for use in cold regions The operating instructions cover moving the shelter on its own wheels or skis, loading it onto a truck or military transport aircraft, slinging it from a helicopter or preparing it for shipment as an ISO container The report details how to site the shelter and expand it to about double its transport size The report also covers operation of the utility systems, including the on-board alternator set, the primary and auxiliary heating systems, the water system, and various safety systems

34-3332
Snow fortifications as protection against shaped charge antitank projectiles.
Farrell, D.R., *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, SR 80-11, 19p. ADA-084 276
Snow strength, Fortifications, Cold weather construction, Cold weather operation, Snow (construction material), Explosion effects, Impact tests, Detonation waves, Embankments.
This report chronicles an investigation of the effectiveness of snow fortifications. The test was planned to observe and measure how packed snow absorbs the energy of high explosive antitank (HEAT) ammunition. In the test plan both the possibility of non-detonation due to insufficient resistance in snow and the rate of deterioration of a snow embankment with repeated impacts were considered The 90-mm M67 recoilless rifle was used because it has a relatively low velocity, and its charge was more likely to not detonate than that of a high velocity weapon. The findings indicate that snow can be used to good advantage for building expedient fortifications, particularly in situations where large volumes of snow have to be cleared from roads and airfields

34-3333
Drilling and coring of frozen ground in northern Alaska, Spring 1979.
Lawson, D.E., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, SR 80-12, 14p., ADA-084 277, 6 refs.
Brockett, B.
Drilling, Permafrost structure, Stratigraphy, Ground ice, Permafrost samplers, Core samplers, Equipment.
Frozen samples of perennially frozen ground were obtained from 33 holes drilled at six locations in the National Petroleum Reserve, Alaska, in the spring of 1979. Total depth of drilling was 510 m (1670 ft), of which 178 m (584 ft) was cored. The objectives of the program were to define the location and extent of segregated and massive ice at each location and to determine the origins and ages of the ground ice through studies of the hole stratigraphy and future laboratory analyses of core samples.

34-3334
Extending the useful life of DYE-2 to 1986. Part 2: 1979 findings and final recommendations.
Tobiasson, W., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Apr. 1980, SR 80-13, 37p., ADA-084 278, 8 refs.
Tilton, P.
Radar, Stations, Snow accumulation, Ice formation, Snow strength, Loads (forces), Steel structures, Stresses, Cost analysis.
A major construction effort is needed at Dew Line Ice Cap Station DYE-2 to extend its useful life to 1986. That work should be done as soon as possible because the truss enclosure is deteriorating rapidly. Although a 210-ft sideways move as was accomplished at DYE-3 in 1977 is technically feasible, the alternative of backfilling the truss enclosure with ice is expected to cost about $2.7 million less. Unless there is a strong possibility that DYE-2 will be needed for many years beyond 1986, the ice backfill alternative is recommended.

34-3335
CRREL roof moisture survey, Pease AFB buildings 35, 63, 93, 112, 113, 120 and 220.
Korhonen, C., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, SR 80-14, 31p., ADA-084 279, 3 refs.
Tobiasson, W.
Roofs, Moisture transfer, Detection, Infrared spectroscopy, Thermal insulation, Measuring instruments.
We surveyed the roofs of seven buildings at Pease AFB with a hand-held infrared scanner to detect wet insulation. We used white spray paint to outline the wet areas and took core samples of the built-up membrane and insulation to verify our findings. Flashing defects around penetrations and bordering walls appear to be the major cause of the wet insulation found on these roofs. Since most problem areas are localized, we directed our repair recommendations toward salvaging as much of each roof as is economically possible.

34-3336
Antarctic navigation.
Woodfield, T., *Journal of navigation*, May 1979, 32(2), p.234-242, Includes discussion.
Ice navigation, Sea ice, Weather observations.
The author shares some of the wisdom he has gained from nineteen years as master of survey ships supporting the BAS in its antarctic research programs. He describes the treacherous weather conditions of the Southern Ocean, the order in which sea ice forms are encountered during a southbound voyage, and suggests good seamanship practices for safely maneuvering a vessel in pack ice. He tells how to read weather indicators, recommends navigation methods, and cautions against the pitfalls inherent in the use of either magnetic or gyro compasses. With less than one percent of antarctic waters properly surveyed, he stresses that progress when off charted routes must be slow, careful, and vigilant.

34-3337
Transportation under economic and geographic conditions of the Yakut ASSR. [Transport v ekonomiko-geograficheskikh usloviiakh IAkutskoi ASSR].
Belinskii, B.V., ed, Yakutsk, Izdanie IAkutskogo Filiala SO AN SSSR, 1976, 104p., In Russian. For selected papers see 34-3338 through 34-3343.
DLC HE255.Z7Y347
Transportation, Roads, Snow roads, Railroads, Rivers, Navigation, Airplanes, Economic analysis, USSR—Yakutia.

34-3338
Influence of procurement forms on magnitude of industrial supplies. [Vliianie form snabzheniia na velichinu proizvodstvennykh zapasov].
Belinskii, B.V., et al, Transport v ekonomiko-geograficheskikh usloviiakh IAkutskoi ASSR (Transportation under economic and geographic conditions of the Yakut ASSR) edited by B.V. Belinskii, Yakutsk, Izdanie IAkutskogo Filiala SO AN SSSR, 1976, p.4-27, In Russian.
Lesnoi, V.G.
DLC HE255.Z7Y347
Economic development, Materials, Equipment, Storage, Transportation, Snow roads, USSR—Yakutia.

34-3339
Freight traffic irregularities on rivers of the Yakut ASSR. [Neravnomernost' gruzopotokov na rechnom transporte IAkutskoi ASSR].
Zavialov, S.IA., Transport v ekonomiko-geograficheskikh usloviiakh IAkutskoi ASSR (Transportation under economic and geographic conditions of the Yakut ASSR) edited by B.V. Belinskii, Yakutsk, Izdanie IAkutskogo Filiala SO AN SSSR, 1976, p.28-40, In Russian.
DLC HE255.Z7Y347
Rivers, Cargo, Transportation, Seasonal variations, USSR—Yakutia.

34-3340
Extending the navigation period on Yakutian rivers. [K voprosu o prodlenii navigatsii na rekakh IAkutii].
Zernov, S.IA., Transport v ekonomiko-geograficheskikh usloviiakh IAkutskoi ASSR (Transportation under economic and geographic conditions of the Yakut ASSR) edited by B.V. Belinskii, Yakutsk, Izdanie IAkutskogo Filiala SO AN SSSR, 1976, p.41-51, In Russian.
DLC HE255.Z7Y347
Transportation, Rivers, Permafrost beneath rivers, Ice conditions, Navigation, USSR—Yakutia.

34-3341
Influence of railroads on motor vehicle transport in Yakutia. [Vliianie razvitiia zheleznodorozhnogo transporta na rabotu avtomobil'nogo transporta v IAkutii].
Shtyrev, I.N., Transport v ekonomiko-geograficheskikh usloviiakh IAkutskoi ASSR (Transportation under economic and geographic conditions of the Yakut ASSR) edited by B.V. Belinskii, Yakutsk, Izdanie IAkutskogo Filiala SO AN SSSR, 1976, p.52-58, In Russian.
DLC HE255.Z7Y347
Railroads, Roads, Permafrost beneath structures, Materials, Transportation, Economic analysis.

34-3342
Norms for spare parts expenditure in motor vehicle transport of the Yakut ASSR. [O normakh raskhoda zapasnykh chastei na avtomobil'nom transporte IAkutskoi ASSR].
Karasev, G.A., et al, Transport v ekonomiko-geograficheskikh usloviiakh IAkutskoi ASSR (Transportation under economic and geographic conditions of the Yakut ASSR) edited by B.V. Belinskii, Yakutsk, Izdanie IAkutskogo Filiala SO AN SSSR, 1976, p.59-65, In Russian.
Grigor'ev, R.S., Shtyrev, I.N.
DLC HE255.Z7Y347
Motor vehicles, Winter maintenance, Cold weather performance, Transportation.

34-3343
Economic effectiveness of turboprop planes used by Yakutian passenger airlines. [Ob ekonomicheskoi effektivnosti ekspluatatsii turbovintovoi tekhniki na passazhirskikh perevozkakh v IAkutskom aviapredpriiatii].
Zharikov, O.N., et al, Transport v ekonomiko-geograficheskikh usloviiakh IAkutskoi ASSR (Transportation under economic and geographic conditions of the Yakut ASSR) edited by B.V. Belinskii, Yakutsk, Izdanie IAkutskogo Filiala SO AN SSSR, 1976, p.66-76, In Russian.
Platonova, L.V., Ponomareva, S.D.
DLC HE255.Z7Y347
Airplanes, Transportation, Economic analysis.

34-3344
Snow cover and precipitation in the mountains of Central Asia. [Snezhnyi pokrov i osadki v gorakh Srednei Azii].
Getker, M.I., ed, *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1978, Vol.44, 98p., In Russian. For selected papers see 34-3345 through 34-3350. Refs. passim.
Konovalov, V.G., ed.
River basins, Snow cover distribution, Snow depth, Glacier ablation, Snow accumulation, Mathematical models, Snow physics, Mountain glaciers, Snow line, Snow water equivalent, Water reserves.

34-3345
Information content of observations on precipitation and snow cover in the Uryadar'ya River Basin for long range forecasts of runoff. [Ob informativnosti nabliudenii nad osadkami i snezhnym pokrovom v basseine r. Uriadar'i dlia dolgosrochnykh prognozov stoka].
Akhundzhanov, Sh.M., et al, *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1978, Vol.44, p.3-21, In Russian. 8 refs.
Getker, M.I.
River basins, Snow cover distribution, Precipitation (meteorology), Snow water equivalent, Runoff, Long range forecasting.

34-3346
Seasonal snow line dynamics as indication of snow reserve gradient. [Dinamika sezonnoi snegovoi linii kak pokazatel' gradienta snegozapasov].
Bassin, N.S., et al, *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1978, Vol.44, p.22-25, In Russian. 4 refs.
Shabunin, G.D.
Mountain glaciers, Snow line, Snow water equivalent, Water reserves, Snow surveys.

34-3347
Results of a numerical experiment of calculating physical characteristics of dry snow. [Rezul'taty chislennogo eksperimenta po raschetu fizicheskikh kharakteristik sukhogo snega].
Trofimova, E.B., *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1978, Vol.44, p.26-33, In Russian. 4 refs.
Snow physics, Snow cover structure, Metamorphism (snow), Mathematical models.

34-3348
More exact definition of mathematical model parameters of snow cover formation in mountains. [Ob utochnenii parametrov modeli formirovaniia snezhnogo pokrova v gorakh].
Borovikova, L.N., et al, *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1978, Vol.44, p.34-40, In Russian. 4 refs.
Trofimova, E.B.
River basins, Snow cover distribution, Snow accumulation, Meteorological factors, Mathematical models.

34-3349
Empirical formulas for calculating melting on glaciers. [Empiricheskie formuly dlia rascheta taianiia na lednikakh].
Konovalov, V.G., *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1978, Vol.44, p.41-53, In Russian. 4 refs.
Glacier ablation, Glacier ice, Ice surface, Snow cover, Snow melting, Ice melting, Solar radiation, Heat transfer, Analysis (mathematics).

34-3350
Influence of slope orientation and dissected topography on the statistical structure of snow depth. [Vliianie orientatsii sklonov i raschleneniia rel'efa na statisticheskuiu strukturu glubiny snega].
Chirkova, A.A., *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1978, Vol.44, p.64-77, In Russian. 4 refs.
River basins, Snow cover distribution, Snow depth, Slope orientation, Topographic effects, Statistical analysis.

34-3351
Studying the mechanism of ice floe entrainment into submerged openings. [Izuchenie mekhanizma vovlecheniia l'din v zaglublennye otverstiia].
Tsilikin, V.F., *Leningrad. Vsesoiuznyi nauchno-issledovatel'skii institut gidrotekhniki. Izvestiia*, 1978, Vol.126, p.98-102, In Russian. 7 refs.
Ice breakup, Ice floes, Ice jams, Models.

34-3352
Ice on the move.
Doake, C.S.M., *Alpine journal*, 1977, 82(326), p.65-71.
Glaciers, Ice sheets, Antarctica, Greenland.
In this general article the author touches briefly on the many forms of ice; the uses to which knowledge of ice and snow is put, the multi-disciplinary nature of ice; the major distribution and contributing areas of Greenland and Antarctica; the possibilities of glaciers as sources of fresh water; and some of the methods of studying glaciers.

34-3353
Modern trends in design, construction and operation of land reclamation systems under Siberian conditions. Abstracts of papers presented at a seminar. [Progressivnye napravleniia proektirovaniia, stroitel'stva i ekspluatatsii meliorativnykh sistem v usloviiakh Sibiri. Tezisy dokladov respublikanskogo seminara].
Sibirskiĭ nauchno-issledovatel'skiĭ institut gidrotekhniki i melioratsii, Krasnoyarsk, 1978, 292p., In Russian. For selected abstracts see 34-3354 through 34-3362.
Morozov, G.A., ed.
DLC S605.2.R9S58
Land reclamation, Snow cover effect, Hydraulic structures, Permafrost hydrology, Water supply, Permafrost beneath structures, Dams, Taiga, Soil formation, Channels (waterways), Cryogenic soils, Soil chemistry, Peat, Physical properties.

34-3354
Deformation of hydraulic structures of land reclamation systems in Central Yakutia. [Deformatsii gidrotekhnicheskikh sooruzhenii na meliorativnykh sistemakh v Tsentral'noi IAkutii].
Seliverstov, A.P., Progressivnye napravleniia proektirovaniia, stroitel'stva i ekspluatatsii meliorativnykh sistem v usloviiakh Sibiri. Tezisy dokladov respublikanskogo seminara (Modern trends in design, construction and operation of land reclamation systems under Siberian conditions. Abstracts of papers presented at a seminar) edited by G.A. Morozov, Krasnoyarsk, 1978, p.7-10, In Russian.
DLC S605.2.R9S58
Hydraulic structures, Permafrost beneath structures, Land reclamation, Drainage, Dams, Frost shattering, Frost heave, Settlement (structural).

34-3355
Structure of land reclamation complexes of the Baykal Amur railroad area and forecasts of their functioning. [Struktura meliorativnykh kompleksov zony BAM i prognoz ikh funktsionirovaniia].
Naprasnikov, A.T., Progressivnye napravleniia proektirovaniia, stroitel'stva i ekspluatatsii meliorativnykh sistem v usloviiakh Sibiri. Tezisy dokladov respublikanskogo seminara (Modern trends in design, construction and operation of land reclamation systems under Siberian conditions. Abstracts of papers presented at a seminar) edited by G.A. Morozov, Krasnoyarsk, 1978, p.39-40.
DLC S605.2.R9S58
Taiga, Permafrost distribution, Discontinuous permafrost, Cryogenic soils, Land reclamation, Baykal Amur railroad.

34-3356
Specifics of soil formation and soils in West Siberia near the Yenisey River. [Osobennosti pochvoobrazovaniia i pochv Prieniseiskoi chasti Zapadnoi Sibiri].
Korsunov, V.M., et al, Progressivnye napravleniia proektirovaniia, stroitel'stva i ekspluatatsii meliorativnykh sistem v usloviiakh Sibiri. Tezisy dokladov respublikanskogo seminara (Modern trends in design, construction and operation of land reclamation systems under Siberian conditions. Abstracts of papers presented at a seminar) edited by G.A. Morozov, Krasnoyarsk, 1978, p.73-75, In Russian.
Boboleva, E.E., Karpenko, V.D., Korsunova, T.M.
DLC S605.2.R9S58
Taiga, Permafrost distribution, Cryogenic soils, Soil formation, Soil chemistry.

34-3357
Determining stability of tailings dump embankments. [Opredelenie ustoichivosti damb khvostokhranilishch].
Zaslavskiĭ, S.V., Progressivnye napravleniia proektirovaniia, stroitel'stva i ekspluatatsii meliorativnykh sistem v usloviiakh Sibiri. Tezisy dokladov respublikanskogo seminara (Modern trends in design, construction and operation of land reclamation systems under Siberian conditions. Abstracts of papers presented at a seminar) edited by G.A. Morozov, Krasnoyarsk, 1978, p.76-77, In Russian.
DLC S605.2.R9S58
Mining, Tailings, Embankments, Permafrost beneath structures, Ground ice, Deformation.

34-3358
Water conduit earth structures of land reclamation systems in Central Yakutia. [Zemlianye vodoprovodiashchie sooruzheniia meliorativnykh sistem Tsentral'noi IAkutii].
Krasnov, IU.N., et al, Progressivnye napravleniia proektirovaniia, stroitel'stva i ekspluatatsii meliorativnykh sistem v usloviiakh Sibiri. Tezisy dokladov respublikanskogo seminara (Modern trends in design, construction and operation of land reclamation systems under Siberian conditions. Abstracts of papers presented at a seminar) edited by G.A. Morozov, Krasnoyarsk, 1978, p.82-84, In Russian.
Demin, A.I.
DLC S605.2.R9S58
Land reclamation, Peat, Drainage, Irrigation, Channels (waterways), Permafrost beneath structures, Ground ice.

34-3359
Sources of water supply and thermal energy resources of the Beloozerskiĭ swamp. [Istochniki vodnogo pitaniia i teploenergeticheskie resursy Beloozerskogo bolotnogo massiva].
Starkov, V.M., Progressivnye napravleniia proektirovaniia, stroitel'stva i ekspluatatsii meliorativnykh sistem v usloviiakh Sibiri. Tezisy dokladov respublikanskogo seminara (Modern trends in design, construction and operation of land reclamation systems under Siberian conditions. Abstracts of papers presented at a seminar) edited by G.A. Morozov, Krasnoyarsk, 1978, p.90-92, In Russian.
DLC S605.2.R9S58
Swamps, Permafrost distribution, Permafrost hydrology, Water supply, Subpermafrost ground water, Suprapermafrost ground water, Frozen rock temperature.

34-3360
Temperature regime of southern chernozems in the Irkutsk region, subject to long seasonal freezing, and their thermal melioration. [Temperaturnyĭ rezhim dlitel'no sezonnomerzlotnykh iuzhnykh chernozemov Irkutskoĭ oblasti i nekotorye voprosy ikh teplovoĭ melioratsii].
Karnaukhov, N.I., et al, Progressivnye napravleniia proektirovaniia, stroitel'stva i ekspluatatsii meliorativnykh sistem v usloviiakh Sibiri. Tezisy dokladov respublikanskogo seminara (Modern trends in design, construction and operation of land reclamation systems under Siberian conditions. Abstracts of papers presented at a seminar) edited by G.A. Morozov, Krasnoyarsk, 1978, p.94-95, In Russian.
Morozova, K.V.
DLC S605.2.R9S58
Cryogenic soils, Thermal regime, Frozen ground temperature, Frost protection, Snow cover effect, Snow retention, USSR—Irkutsk.

34-3361
Thermophysical properties of frozen low moor peats. [Teplofizicheskie svoĭstva merzlykh nizinnykh torfov].
Bushina, O.N., et al, Progressivnye napravleniia proektirovaniia, stroitel'stva i ekspluatatsii meliorativnykh sistem v usloviiakh Sibiri. Tezisy dokladov respublikanskogo seminara (Modern trends in design, construction and operation of land reclamation systems under Siberian conditions. Abstracts of papers presented at a seminar) edited by G.A. Morozov, Krasnoyarsk, 1978, p.132-134, In Russian.
Glushkova, N.I.
DLC S605.2.R9S58
Swamps, Peat, Physical properties, Thermal properties.

34-3362
Influence of freezing on nutrient content of hydromorphic soils. [Vliianie kriogeneza na soderzhanie elementov pitaniia v gidromorfnykh pochvakh].
Rudoi, N.G., et al, Progressivnye napravleniia proektirovaniia, stroitel'stva i ekspluatatsii meliorativnykh sistem v usloviiakh Sibiri. Tezisy dokladov respublikanskogo seminara (Modern trends in design, construction and operation of land reclamation systems under Siberian conditions. Abstracts of papers presented at a seminar) edited by G.A. Morozov, Krasnoyarsk, 1978, p.148-150, In Russian.
Geras'kina, A.P.
DLC S605.2.R9S58
Cryogenic soils, Nutrient cycle, Soil chemistry, Frost action.

34-3363
Large scale mapping of southern taiga vegetation in the Central Ural Mountains. [Opyt krupnomasshtabnogo kartirovaniia rastitel'nosti iuzhnoĭ taigi Srednego Urala].
Gorchakovskiĭ, P.L., et al, *Vsesoiuznoe botanicheskoe obshchestvo. Sverdlovskoe otdelenie. Zapiski*, 1977, Vol.7, Geobotanika, ekologiia i morfologiia rastenii na Urale (Geobotany ecology and morphology of Ural Mountain plants) edited by P.L. Gorchakovskiĭ, p.3-15, In Russian. 9 refs.
Nikonova, N.N., Famelis, T.V., Sharafutdinov, M.I.
DLC QK1.V714
Mapping, Vegetation, Taiga, Charts, Landscape types, USSR—Ural Mountains.

34-3364
Ecologic series technique for revealing regularities governing altitudinal distribution of vegetation. [Primenenie metoda ekologicheskikh riadov dlia vyiavleniia zakonomernosteĭ vysotnogo raspredeleniia rastitel'nosti].
Famelis, T.V., *Vsesoiuznoe botanicheskoe obshchestvo. Sverdlovskoe otdelenie. Zapiski*, 1977, Vol.7, Geobotanika, ekologiia i morfologiia rastenii na Urale (Geobotany, ecology and morphology of Ural Mountain plants) edited by P.L. Gorchakovskiĭ, p.22-27, In Russian. 20 refs.
DLC QK1.V714
Alpine landscapes, Taiga, Alpine tundra, Vegetation.

34-3365
Nitrogen transformations in a simulated overland flow wastewater treatment system.
Chen, R.L., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Apr. 1980, SR 80-16, 33p., ADA-084 280, 36 refs.
Patrick, W.H., Jr.
Waste treatment, Water treatment, Nutrient cycle, Soil chemistry.
Treating wastewater in properly designed and operated overland flow systems results in significant amounts of N being removed through nitrification-denitrification reactions. Application of wastewater containing NH4-N in a simulated overland flow model led to the disappearance of ammonium and the formation of nitrate in oxidized surface soil. The N balance in the simulated overland flow system was estimated by using labeled 15 N. The amount of N removed in the system depends upon denitrification rates. The results of this study indicated that N adsorption on the soil complex and uptake of applied ammonium by vegetation accounted for the N removed in the overland flow systems. The adsorbed ammonium on the aerated surface soil mass was nitrified and converted to oxidized forms of N. The nitrate thus formed diffused downward to the reduced zone during subsequent wastewater applications. Some of this nitrate then denitrified and converted to gaseous form of N or was assimilated and reduced by plant life. Results of the overland flow studies indicated that approximately 55-68% of wastewater NH4-N added to the simulated overland flow system was unaccounted for in controlled laboratory environments. This NH4-N was presumably returned to the atmosphere.

34-3366
Time-dependent feedback system involving sea-ice extent, ocean temperature, and CO2.
Saltzman, B., et al, *Tellus*, Apr. 1980, 32(2), p.93-118, In English with Russian summary. 31 refs.
Moritz, R.E.
Sea ice, Ice cover effect, Heat transfer, Mathematical models, Climate, Carbon dioxide, Sea water, Water temperature.

34-3367
Effects of loading thermal and electrical resistance of cryogenic insulation materials.
Mil'man, S.B., et al, *Journal of engineering physics*, Feb. 1980, 337(2), p.982-985, Translated from Inzhenerno-fizicheskiĭ zhurnal. 9 refs.
Kaganer, M.G.
Construction materials, Thermal insulation, Heat transfer.

34-3368
Maximum permissible values of nonuniform settlement of agricultural buildings.
Zhukov, N.V., et al, *Soil mechanics and foundation engineering*, Sep.-Oct. 1979, 16(5), p.243-248, 2 refs. Translated from Osnovaniia, fundamenty i mekhanika gruntov.
Borshchev, V.V., Balov, I.L.
Settlement (structural), Frost heave, Design, Buildings, Foundations.

34-3369
Construction of a cutoff wall by the diaphragm wall method in the foundation pit of a bank pumping station.
Domarev, A.N., et al. *Soil mechanics and foundation engineering*, Sep.-Oct. 1979, 16(5), p.255-259, Translated from Osnovaniia, fundamenty i mekhanika gruntov.
Nepomniashchii, V.A., Sorokovkin, M.S., Fedorov, B.S.
Pumps, Foundations, Earthwork, Cold weather construction, Stations.

34-3370
Pressure meter for testing soft soils.
Lushnikov, V.V., et al. *Soil mechanics and foundation engineering*, Sep.-Oct. 1979, 16(5), p.262-265, 7 refs. Translated from Osnovaniia, fundamenty i mekhanika gruntov.
Bystrykh, V.F.
Clay soils, Bearing tests, Drilling, Test equipment, Borehole instruments, Paludification.

34-3371
Preconstruction consolidation of bases with vertical drains.
Bel'skii, A.I., et al. *Soil mechanics and foundation engineering*, Sep.-Oct. 1979, 16(5), p.266-272, 9 refs. Translated from Osnovaniia, fundamenty i mekhanika gruntov.
Svetinskii, E.V., Stroganov, A.S.
Clay soils, Peat, Mud, Soil compaction, Drainage, Foundations.

34-3372
Determination of the parameters of the method of thermal stabilization of soils and its economic effectiveness.
Il'rdanov, A.P., *Soil mechanics and foundation engineering*, Sep.-Oct. 1979, 16(5), p.272-278, 9 refs. Translated from Osnovaniia, fundamenty i mekhanika gruntov.
Clay soils, Loess, Soil stabilization, Heating, Foundations.

34-3373
Use of high-pressure water jets in construction.
Petrosian, L.R., *Soil mechanics and foundation engineering*, Sep.-Oct. 1979, 16(5), p.279-283, 5 refs. Translated from Osnovaniia, fundamenty i mekhanika gruntov.
Excavation, Hydraulic jets.

34-3374
Experience with the drying of loess soils using radial horizontal holes.
Anpilov, V.E., et al. *Hydrotechnical construction*, July 1979, No.7, p.674-677, 2 refs. Translated from Gidrotekhnicheskoe stroitel'stvo.
Ponomarenko, IU.V.
Clay soils, Loess, Paludification, Drainage.

34-3375
All-Union scientific-technical conference on hydrotechnical construction in regions of permafrost and rigorous climate (CHC-78).
Kudoiarov, L.I., et al. *Hydrotechnical construction*, July 1979, No.7, p.724-726, Translated from Gidrotekhnicheskoe stroitel'stvo.
Tetel'min, V.V.
Meetings, Hydraulic structures, Permafrost beneath structures, Earth dams, Thermal regime, Design.

34-3376
Passage of ice during construction of the Sayano-Shushenskoe hydroelectric station.
Koren'kov, V.A., *Hydrotechnical construction*, Aug. 1979, No.8, p.777-781, 6 refs. Translated from Gidrotekhnicheskoe stroitel'stvo.
Hydraulic structures, Electric power, Dams, Ice passing.

34-3377
Investigation of construction-joint grouting techniques under field conditions.
Zhivoderov, V.N., et al. *Hydrotechnical construction*, Sep. 1979, No.9, p.872-879, 5 refs. Translated from Gidrotekhnicheskoe stroitel'stvo.
Sukhanov, G.K.
Concrete structures, Dams, Joints (junctions), Grouting.

34-3378
Control of seepage through concrete by injection of polymer solutions.
Ibragimov, M.N., *Hydrotechnical construction*, Sep. 1979, No.9, p.880-882, Translated from Gidrotekhnicheskoe stroitel'stvo. 3 refs.
Concretes, Fracturing, Porosity, Concrete structures, Joints (junctions), Seepage, Waterproofing, Grouting, Cements.

34-3379
Problems of mountain glaciology. [Voprosy gornoi gliatsiologii].
Nauchnaia konferentsiia Itogi i perspektivy gliatsiogidroklimatologicheskogo izucheniia Altae-Saianskoi gornoi oblasti, Tomsk, Feb. 19-22, 1975, Tomsk, Universitet, 1977, 212p., In Russian. For selected papers see 34-3380 through 34-3389. Refs. passim.
Reviakin, V.S., ed.
DLC GB2556.A57N37 (1975)
Glaciology, Climatology, Theories, Research projects, Mountain glaciers, Glacier mass balance, Snow accumulation, Snow line, Glacier ablation, Snow cover stability, Avalanches.

34-3380
Glacio-climatology as a connecting scientific discipline, its problems and goals. [Gliatsioklimatologiia kak kontaktnaia nauchnaia distsiplina, ee tseli i zadachi].
Tronov, M.V., Voprosy gornoi gliatsiologii (Problems of mountain glaciology) edited by V.S. Reviakin, Tomsk, Universitet, 1977, p.3-11, In Russian. 14 refs.
DLC GB2556.A57N37 (1975)
Glaciology, Climatology, Theories, Research projects, Mountain glaciers, Ice formation, Firn, Glacier alimentation, Snow line, Glacier oscillation.

34-3381
Intracontinental version of earth's cryosphere. [Vnutrikontinental'nyi variant gliatsiosfery zemli].
Reviakin, V.S., Voprosy gornoi gliatsiologii (Problems of mountain glaciology) edited by V.S. Reviakin, Tomsk, Universitet, 1977, p.12-35, In Russian. 57 refs.
DLC GB2556.A57N37 (1975)
Glacier ice, Mountain glaciers, Glacier formation, Glacier alimentation, Avalanches, Naleds, USSR—Altai Mountains, USSR—Sayan Mountains.

34-3382
Radiation regime of the Altai-Sayan mountain system. [Osnovnye cherty radiatsionnogo rezhima Altae-Saianskoi oblasti].
Goleshchikhin, V.P., Voprosy gornoi gliatsiologii (Problems of mountain glaciology) edited by V.S. Reviakin, Tomsk, Universitet, 1977, p.72-79, In Russian. 9 refs.
DLC GB2556.A57N37 (1975)
Glacier ice, Alpine landscapes, Solar radiation, Glacier ablation, Radiation balance.

34-3383
Subsistence regime of quasi-glacier snow patches. [Rezhim sushchestvovaniia mnogoletnikh snezhnikov - pochti lednikov].
Glazyrin, G.E., Voprosy gornoi gliatsiologii (Problems of mountain glaciology) edited by V.S. Reviakin, Tomsk, Universitet, 1977, p.80-91, In Russian. 20 refs.
DLC GB2556.A57N37 (1975)
Snow accumulation, Metamorphism (snow), Firn stratification, Topographic factors, Meteorological factors, Analysis (mathematics).

34-3384
Snow patch stability in the Aktru River glaciation basin. [Snezhniki i ikh ustoichivost' v gornolednikovom basseine r. Aktru].
Dudukalova, N.I., Voprosy gornoi gliatsiologii (Problems of mountain glaciology) edited by V.S. Reviakin, Tomsk, Universitet, 1977, p.103-106, In Russian. 4 refs.
DLC GB2556.A57N37 (1975)
Snow cover stability, Glacial rivers, Alimentation, River basins, Snow patches.

34-3385
Mass balance of Altai glaciers. [Veshchestvennyi balans lednikov Altaia].
Reviakin, V.S., et al. Voprosy gornoi gliatsiologii (Problems of mountain glaciology) edited by V.S. Reviakin, Tomsk, Universitet, 1977, p.116-130, In Russian. 9 refs.
Galakhov, V.N.
DLC GB2556.A57N37 (1975)
Mountain glaciers, Glacier mass balance, Snow accumulation, Snow cover distribution, Glacier ablation.

34-3386
Evaluating avalanche recurrence in Zailiyskiy Alatau from dendrochronological data. [Nekotorye rezul'taty otsenki povtoriaemosti lavin v Zailiiskom Alatau po materialam dendrokhronologicheskogo analiza].
Severskii, I.V., et al. Voprosy gornoi gliatsiologii (Problems of mountain glaciology) edited by V.S. Reviakin, Tomsk, Universitet, 1977, p.131-140, In Russian. 13 refs.
Kontsova, L.N., Toporkov, A.D.
DLC GB2556.A57N37 (1975)
Avalanches.

34-3387
Statistical analysis of the influence of morphology and morphometry of avalanche foci on ejection distances. [Izuchenie vliianiia morfologii i morfometrii lavinnykh ochagov na dal'nost' vybrosa lavin statisticheskim metodom].
Blagoveshchenskii, V.P., Voprosy gornoi gliatsiologii (Problems of mountain glaciology) edited by V.S. Reviakin, Tomsk, Universitet, 1977, p.141-147, In Russian. 5 refs.
DLC GB2556.A57N37 (1975)
Avalanche formation, Avalanche mechanics, Avalanche triggering.

34-3388
Forecasting fresh snow avalanches using discriminant analysis. [Eksperiment prognoza lavin svezhevypavshego snega s pomoshch'iu diskriminantnogo analiza].
Drozdovskaia, N.F., et al. Voprosy gornoi gliatsiologii (Problems of mountain glaciology) edited by V.S. Reviakin, Tomsk, Universitet, 1977, p.148-156, In Russian. 13 refs.
Imas, L.I.
DLC GB2556.A57N37 (1975)
Snow physics, Avalanche forecasting, Avalanche formation, Meteorological factors, Avalanche triggering, Analysis (mathematics).

34-3389
Evaluating avalanche danger in the Katunskiy Range, Altai. [Opyt otsenki stepeni lavinnoi opasnosti na primere Katunskogo khrebta (Altai)].
Reviakin, V.S., et al. Voprosy gornoi gliatsiologii (Problems of mountain glaciology) edited by V.S. Reviakin, Tomsk, Universitet, 1977, p.157-162, In Russian. 10 refs.
Petkevich, M.V.
DLC GB2556.A57N37 (1975)
Economic development, Avalanche formation, Mapping, Avalanche forecasting, USSR—Altai Mountains.

34-3390
Polar environmental monitoring: final report.
System Planning Corporation, Arlington, Va., Feb. 1979, 94p. SPC 392.
Nagler, R.G., Schultheis, A.C.
Spacecraft, Monitors, Sea ice, Remote sensing, Weather, Radiometry, Climate, Polar atmospheres, Environmental protection, Antarctica.
This report investigates the technical and economic feasibility of a satellite-based polar environmental monitoring system. User benefits to industry, government and the scientific community are discussed and interested and active user groups identified. The report is then organized into the following sections: user needs for polar environmental information; polar measurement status, sensor status; trajectory tradeoffs; data processing and delivery alternatives, platform (payload) alternatives; and sample implementation alternatives for polar research.

34-3391
Study of shorelines in the building and operation of Siberian reservoirs.
Vendrov, S.L., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, TL 724, 10p., ADB-046 835L. For Russian original see 32-439. 22 refs.
Shirokov, V.M.
Shoreline modification, Reservoirs, Shore erosion, Permafrost beneath lakes, Ground ice, Forecasting, Water storage.
Since the early 1950's, increased construction of large reservoirs has led to expanded studies of shoreline re-formation. Shorelines of reservoirs have been studied in two stages: 1) during the construction period and filling of the reservoir and 2) during its long-term use. Forecasting of shoreline changes not only for reservoir design but also for long-term use of the shores has attained importance. Problems needing study currently include improvement of long-term forecasts and checking of their accuracy, large scale study of shoreline re-formation throughout the country, studies of the shorelines of small and medium-sized Siberian reservoirs, changes in water level, linked reservoirs, genetic classification of reservoir shorelines, and study of the development of shorelines of reservoirs along the Baykal-Amur railroad.

34-3392
Permafrost in the territory of the Boguchansk reservoir.
Serov, A.G., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, TL 725, 9p., ADB-046 836L, For Russian original see 33-3415. 2 refs.
Leshchikov, F.N.
Permafrost distribution, Active layer, Geocryology, Sporadic permafrost, Frozen fines, Swamps, Peat, Frost penetration, Snow cover effect, Charts, USSR—Angara River.
The distribution of permafrost in the vicinity of the Boguchansk Reservoir is irregular. It covers 20-30% of the region generally on shaded north-facing slopes, in deep ravines and small valleys, and in populated areas. The top of the permafrost is mainly at 0.5 to 2.5 m depth, thickness is generally 5-10 m and can reach 20 m. The depth of seasonal freezing of soils varies greatly, depending mainly on the amount of snow cover and type of soil (range 0.6-3.5 m). Disruption of natural conditions (cutting of forests, fires, plowing, road-building) will cause rapid degradation of the permafrost. Construction of the reservoir will lead to dramatic change (permafrost degradation) in the shoreline zone.

34-3393
Geoengineering and hydrogeologic studies of the zone of influence of the Angara reservoirs and means of effective incorporation of these results in the national economy.
Odintsov, M.M., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, TL 726, 10p., ADB-046 837L, For Russian original see 33-3414. 11 refs.
Trzhtsinskii, IU.B., Shen'kman, B.M.
Reservoirs, Permafrost distribution, Electric power, Shore erosion, Slope processes, Landslides, Solifluction, Earthquakes, USSR—Angara River.
A string of hydroelectric dams in Eastern Siberia have created a system of reservoirs some 800-900 km long. The reservoirs have created a host of hydrological and geological problems, including eroding banks, activated karsting, mudslides, landslides, increases in the height of the water table, and changes in the processes of ground water-surface water exchange. The Soviet Institute of the Earth's Crust has been studying these problems. They have published a number of reports, modeled various processes, and developed a program for future research.

34-3394
Thermal behavior of concrete slab on frozen ground bed.
Gavrish, IU.E., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, TL 729, 9p., ADB-046 838L, For Russian original see 33-1817. 3 refs.
Khvorostovskaia, N.S., Serbin, V.G.
Winter concreting, Frozen ground, Concrete freezing, Concrete strength, Thermal regime, Concrete placing.
This work involved experimental and theoretical studies of the thermal behavior of a concrete slab design and frozen ground bed from the instant of placement of the concrete until its freezing. The experiment was conducted on an exposed experimental site with sandy soil, containing approximately 11% moisture by weight.

34-3395
Components of biogeocenoses of the tundra-forest regions of the northern Okhotsk Sea region.
Ignatenko, I.V., ed, *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, TL 730, 51p., ADB-046 839L. 66 refs. For Russian original see 34-1158. For individual articles see 34-3396 through 34-3399.
Khokhriakov, A.P., ed.
Forest tundra, Ecology, Biogeography, Vegetation, Climate, Animals, Soils.
A description is given of the basic components of biogeocenoses of the territory of the "Snow Valley" station, situated by the Okhotsk Sea land province: the geological structure, the topography, soil-forming rocks, the climate, the vegetation and soil beds, the flora of vascular plants, fungi and mosses, entomofauna and fauna of land invertebrates, the morphological-genetic characteristics, and the hydrothermal regulation of the more prevalent soils of the station. Diagrams of the vegetation and soil covers are given also. The structure of the soil cover is separated into various grades in the soil diagram. Much attention has been devoted to human activity in the soil and vegetation covers.

34-3396
Physical-geographical conditions of the northern Okhotsk Sea region and the hydrothermal state of the soils ("Snow Valley Station").
Ignatenko, I.V., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, TL 730, p.5-23, For Russian original see 34-1159. 32 refs.
Mel'nikova, T.V., Pugachev, A.A.
Forest tundra, Soil temperature, Vegetation, Taiga, Soil water, Landscape types, Plant ecology.

34-3397
Vegetation of the "Snow Valley" station (Explanatory list with a diagram of vegetation).
Shatkauskas, A.V., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, TL 730, p.24-35, For Russian original see 34-1160. 15 refs.
Zverdenko, V.B.
Forest tundra, Taiga, Vegetation, Plant ecology, Ecosystems, Mapping, Charts.

34-3398
Soil cover of the "Snow Valley" station (Explanatory list with a diagram of soil cover).
Bogdanov, I.E., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, TL 730, p.36-47, For Russian original see 34-1161. 23 refs.
Ignatenko, I.V., Kvantaliani, L.G.
Cryogenic soils, Classifications, Landscape types, Soil patterns, Mapping.

34-3399
Flora of vascular plants of the "Snow Valley" station.
Khokhriakov, A.P., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, TL 730, p.48-51, For Russian original see 34-1162.
Shatkauskas, A.V.
Forest tundra, Vegetation, Landscape types, Ecosystems, Swamps.

34-3400
Dynamics of the Baykal shore processes on the Tyya-Nizhneangarsk section.
Bodenko, V.M., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, TL 731, 6p., ADB-046 840L, For Russian original see 33-3931. 5 refs.
Leshchikov, F.N., Rogozin, A.A.
Shoreline modification, Geocryology, Slope processes, Frost weathering, Permafrost beneath structures, Hydraulic structures, Earthquakes, USSR—Baykal Lake.
A 20-km length of the northern shoreline of Lake Baikal was investigated in connection with construction of the Baykal-Amur railroad. Interaction of the water body with the shore and geological evolution of the shoreline were studied. Morphology of the shore and bottom is described. Natural reworking of the shoreline and the effects and consequences of human activities (construction) are discussed.

34-3401
Studying the effect of water reservoirs on slope processes on their shores.
Kachugin, E.G., *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, TL 732, 3p., ADB-047 447L, For Russian original see 25-1305.
Slope processes, Slope stability, Shore erosion, Reservoirs.
This is a general description of reservoir shore erosion processes and data needs to assess slope stability, soil mechanics and landslide dynamics. The characteristics and types of landslides typical of the reservoir shores along the Volga are described. The following factors contribute to the loss of shore stability along these shores: abrasion at the waterline; gully and rill erosion along the face of the slope; ground water saturation of slope material and groundwater piping; chemical weathering and erosion of slope material; rapid pool level fluctuations causing alternating wetting and drying of slope and increase of hydrostatic pressure in slope after rapid drop in water level; and man-induced effects. Quantitative information on shore erosion and landslide processes is needed to predict reservoir shoreline recession.

34-3402
Recent geological processes and phenomena observed on the southern shore of Ob' Bay.
Trepetsov, E.V., *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, TL 733, 4p., ADB-046 841L, For Russian original see 29-2169. 2 refs.
Slope processes, Permafrost structure, Permafrost weathering, Thermokarst, Environmental impact, Geomorphology, Clays, Sands, USSR—Ob' Bay.
Parts of the shorelines of Ob' Bay and Tasov' Bay were studied in connection with planned and current construction projects in the Tumen' district. Windward shores composed of frozen loams, sands and sandy loams are retreating at a rate of about 0.9 m/yr due to abrasion, snow erosion and solifluction. Destruction of the turf cover by man has led to development of scours, ravines and gorges; in sand and sandy loam permafrost the rate of development is 48 m/yr. During summer, small streams fed by meltwater from thawing saturated permafrost exist in ravines. Also observed were thermokarst pits and lakes and frost mounds up to 5 m high.

34-3403
How to compute complex interconnected district heating systems.
Wehr, R., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, TL 734, 13p., ADA-084 211, Translated from Fernwärme international, 1979, 8(5):247-252. 6 refs.
Tautz, A.
Heating, Heat transmission, Computer programs, District heating.
The cost-intensive extension of urban district heating systems demands a relatively accurate assessment of the distribution apparatus with respect to the heating market to be supplied. Here we consider the plans of currently available computer programs which can reproduce with practical approximation the operating conditions of complicated interconnected heating networks. Along with the validity of the program, the quality of its application is equally critical; this application requires a meticulous analysis of parameters such as line resistances, temperature conditions and load distribution.

34-3404
Differences between explosions and earthquakes.
Cheng, Z.C., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, TL 735, 18p., ADA-084 245, Translated from Acta Geophysica Sinica, July 1975, 18(3):208-216. 11 refs.
Zhu, C.C., Hu, Z.C.
Earthquakes, Explosion effects, Seismic surveys, Statistical analysis, Analysis (mathematics).
This paper investigates the differences between seismograms of industrial explosions and earthquakes of medium strength (2-5.4.5) and at medium distances (100-500 km) in order to offer methods of distinguishing explosions from the records.

34-3405
Ground ice and ice-rich ground as structure foundations.
Vialov, S.S., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Apr. 1980, TL 737, 159p., ADB-047 446L, For Russian original see 32-1655. 58 refs.
Dokuchaev, V.V., Sheinkman, D.R.
Ground ice, Permafrost bases, Permafrost beneath structures, Ice strength, Ice creep, Foundations, Ice physics, Deformation, Rheology, Experimentation.
This book examines the characteristics of foundation design on ground ice and ice-rich permafrost soils which are common in the Far North. The characteristics of these foundations are determined primarily by the properties of the enclosed or ground ice; therefore the latter is emphasized in this book. Based on experimental research, the authors establish patterns of deformation of ice-rich ground and ground ice under load, cite recommendations for the determination of characteristics necessary for design, present methods of computing foundation settling caused by the viscous flow of ice and ice-rich ground, and indicate methods of their application to engineering using examples. Supplementary tables and graphs contained in the book contribute to its value.

34-3406
Microwave radar and radiometric remote sensing measurements of lake ice.
Swift, C.T., et al, *Geophysical research letters*, Apr. 1980, 7(4), p.243-246, 11 refs.
Jones, W.L., Jr., Harrington, R.F., Fedors, J.C., Couch, R.H.
Lake ice, Remote sensing, Microwaves, Radiometry, Ice spectroscopy.

34-3407
Growth of ice discs from the vapor and the mechanism of habit change of ice crystals.
Keller, V.W., et al, *Journal of crystal growth*, July 1980, 49(3), p.458-464, 17 refs.
McKnight, C.V., Hallett, J.
Ice crystal growth, Ice crystal nuclei, Vapor diffusion, Cloud chambers, Supersaturation, Temperature gradients.

34-3408
High pressure apparatus for PVT measurements of liquids and plastic crystals at low temperature.
Landau, R., et al, *Review of scientific instruments*, Apr. 1980, 51(4), p.533-535, 16 refs.
Würflinger, A.
Crystals, Plastics, Low temperature tests, Liquids, Pressure, Volume, Temperature effects, Measuring instruments.

34-3409
Alaskan gas line planners—the elite of Arctic experts.
Kelder, B., *Pipeline and gas journal*, Mar. 1980, 207(3), p.54, 58, 91.
Gas pipelines, Research projects, Permafrost beneath structures, Climatic factors, Polar regions.

34-3410
Exploring the Arctic for oil.
Sklarewitz, N., *Exxon USA*, 1980, 2nd quarter, p.2-5.
Sea ice, Ice mechanics, Ice cover strength, Oil recovery, Ice crystal structure, Exploration.

34-3411
Snow physics, avalanches, mudflows. [Fizika snega, lavin, selej].
Zalikhanov, M.Ch., ed. *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1980, Vol.46, 160p., In Russian. For individual papers see 34-3412 through 34-3430. Refs. passim.
Avalanches, Snow cover distribution, Metamorphism (snow), Snow recrystallization, Snow temperature, Air temperature, Avalanche forecasting, USSR—Caucasus.

34-3412
Snow cover development and its dependence on winter temperature and slope exposition in the El'brus Mountain area. [Osobennosti razvitiia snezhnoĭ tolshchi i zavisimosti ot temperaturnykh uslovii zimy i ekspozitsii sklonov v Priel'brus'e].
Kunaeva, G.M., et al. *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1980, Vol.46, p.3-12, In Russian. 17 refs.
Metamorphism (snow), Snow recrystallization, Snow temperature, Air temperature, Avalanche forecasting, Snow cover structure.

34-3413
Avalanche regime of the El'brus Mountain area. [Lavinnyĭ rezhim Priel'brus'ia].
Trumbaev, N.A. *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1980, Vol.46, p.13-20, In Russian. 9 refs.
Snow cover distribution, Snow cover structure, Snow recrystallization, Avalanche formation, Avalanche forecasting, Slope orientation, USSR—El'brus Mountain.

34-3414
Friable zones in snow cover and their meaning in avalanche formation. [O gorizontakh razrykhleniia v snezhnoĭ tolshche i ikh znachenii v lavinoobrazovanii].
Bolov, V.R., et al. *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1980, Vol.46, p.21-28, In Russian. 11 refs.
Zalikhanov, M.Ch., Shabel'nikov, V.A.
Snow cover structure, Metamorphism (snow), Avalanche formation.

34-3415
Mechanism of avalanche formation from snow slabs with friable zones. [O mekhanizme obrazovaniia lavin iz snezhnoĭ doski pri nalichii gorizonta razrykhleniia].
Bolov, V.R., *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1980, Vol.46, p.29-42, In Russian. 20 refs.
Avalanche formation, Snow cover structure, Snow cover stability.

34-3416
Methods and results of artificial avalanche triggering in the El'brus Mountain area. [O rezul'tatakh i metodike iskusstvennogo spuska lavin v Priel'brus'e].
Bolov, V.R., et al. *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1980, Vol.46, p.43-46, In Russian. 11 refs.
Sokolov, L.V., Shabel'nikov, V.A.
Avalanche formation, Avalanche triggering, Detonation waves, Snow slides, Avalanche engineering.

34-3417
Determining optimal time for artificial triggering of fresh snow avalanches. [K voprosu opredeleniia naibolee blagopriiatnogo vremeni dlia aktivnogo vozdeistviia na svezhevypavshiĭ sneg s tsel'iu obrusheniia lavin].
Khalkechev, V.A., *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1980, Vol.46, p.47-52, In Russian. 1 ref.
Slope processes, Snow cover stability, Avalanche formation, Avalanche triggering.

34-3418
Regularities governing snow cover stability on slopes. [O nekotorykh zakonomernostiakh ustoichivosti snezhnogo pokrova na sklone].
Mironov, V.N., et al. *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1980, Vol.46, p.53-56, In Russian. 1 ref.
Khalkechev, V.A.
Slope processes, Snow cover stability, Snow cover structure, Avalanche formation, Analysis (mathematics).

34-3419
Thickness of fluid film on ice crystal surfaces. [K voprosu o tolshchine zhidkoĭ plenki na poverkhnosti kristallov l'da].
Badakhov, Kh.I., *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1980, Vol.46, p.57-66, In Russian. 24 refs.
Ice crystal nuclei, Metamorphism (snow), Water films, Avalanche forecasting, Analysis (mathematics).

34-3420
Data units for telemetering physical and mechanical properties of snow cover on slopes. [Datchiki dlia distantsionnogo izmereniia fiziko-mekhanicheskikh parametrov snezhnogo pokrova na sklonakh].
Bagov, M.M., et al. *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1980, Vol.46, p.67-74, In Russian. 8 refs.
Zalikhanov, M.Ch., Davydkin, A.D.
Slope orientation, Snow cover distribution, Snow cover stability, Snow mechanics, Telemetering equipment, Remote sensing, Measuring instruments.

34-3421
Snow and avalanche loads on remote-control snow surveying installations. [Uchet snegolavinnykh nagruzok na distantsionnuiu snegomernuiu ustanovku].
Bagov, M.M., et al. *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1980, Vol.46, p.75-81, In Russian. 6 refs.
Zalikhanov, M.Ch., Davydkin, A.D.
Snow surveys, Measuring instruments, Remote sensing, Snow loads, Avalanche mechanics.

34-3422
Using gamma logging for snow density measurement on mountain slopes. [O primenenii gamma-karotazha dlia izmereniia plotnosti snezhnoĭ tolshchi na gornom sklone].
Bagov, M.M., et al. *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1980, Vol.46, p.82-86, In Russian. 6 refs.
Zalikhanov, M.Ch., IAushev, K.K., Bersirov, M.T.
Snow surveys, Gamma irradiation, Measuring instruments, Remote sensing, Mathematical models.

34-3423
Compiling avalanche cadasters for the Terek River Basin. [Opyt sostavleniia kadastra lavin basseĭna r. Terek].
Kozhaev, D.A., *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1980, Vol.46, p.87-93, In Russian. 4 refs.
River basins, Slope processes, Avalanche formation, Snow surveys, Data processing, Statistical analysis, USSR—Terek River.

34-3424
Avalanche cadasters for Dagestan and Transcaucasia. [O soderzhanii kadastra lavin Zakavkaz'ia i Dagestana].
Abshelishvili, K.L., et al. *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1980, Vol.46, p.94-97, In Russian. 1 ref.
Kaldani, L.A., Salukvadze, M.E.
Snow surveys, Avalanches, Data processing, Avalanche formation, Statistical analysis.

34-3425
Effective radiation and radiation balance in the Caucasus. [Effektivnoe izluchenie i radiatsionnyĭ balans na territorii Kavkaza].
Samukashvili, R.D., *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1980, Vol.46, p.98-110, In Russian. 3 refs.
Glacier surfaces, Snow cover, Solar radiation, Radiation balance, USSR—Caucasus.

34-3426
Snow cover effect on annual variations of reflected radiation and albedo in the Caucasus. [Vliianie snezhnogo pokrova na godovoĭ khod otrazhennoĭ radiatsii i al'bedo v usloviiakh Kavkaza].
Samukashvili, R.D., *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1980, Vol.46, p.111-122, In Russian. 1 ref.
Snow optics, Ice optics, Albedo, Alpine landscapes, Glacier ice, USSR—Caucasus.

34-3427
Diffuse radiation in the Caucasus. [Rasseiannaia radiatsiia na Kavkaze].
Samukashvili, R.D., *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1980, Vol.46, p.123-129, In Russian. 1 ref.
Solar radiation, Scattering, Radiation balance, Actinometry, USSR—Caucasus.

34-3428
Discharge of the Kaiartasu and Sakashilsu rivers during the warm season. [Stok rek Kayartasu i Sakashilsu za teplyĭ period goda].
Samukashvili, R.D., *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1980, Vol.46, p.130-136, In Russian. 3 refs.
Glacial hydrology, Glacial rivers, Drainage, Glacier ablation.

34-3429
Mudflows in the Baksan River Basin in the summer of 1977. [Selevye potoki v basseĭne r. Baksan letom 1977 g.].
Gerasimov, V.A., *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1980, Vol.46, p.137-147, In Russian. 4 refs.
Mudflows, Glacial deposits, Glacial hydrology, Countermeasures, USSR—Caucasus.

34-3430
Mudflow damage to the village of Nizhniy Chegem on July 7, 1977. [Selevoĭ potok v sel. Nizhniĭ Chegem 7 iiulia 1977 g.].
Gerasimov, V.A., *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1980, Vol.46, p.148-151, In Russian.
Mudflows, Origin, Countermeasures, USSR—Caucasus.

34-3431
Antarctic forecasters handbook.
U.S. Naval Support Force, Antarctica. Antarctic Support Activities. Detachment Charlie, Apr. 1970, c125 leaves, 63 refs.
DAS M09.3 U585 an
Manuals, Weather forecasting.
The topography, climatology, and a description of the area are presented, including a discussion of the topography and climatology of McMurdo station, instrumentation and runway (skiway) configuration of the station's air fields, the geomorphology and general climatology of Antarctica and the climatology of other stations of the antarctic, subantarctic and southern hemisphere.

34-3432
Acoustic backscattering from uniform Arctic sea ice.
Garrison, G.R., et al. Ocean '74 IEEE International Conference on Engineering in the Ocean Environment, Halifax, Nova Scotia, Aug. 21-23, 1974. Record, Vol.2, New York, Institute of Electrical and Electronic Engineers, 1975, p.34-38, 4 refs.
Early, E.W.
Sea ice, Ice acoustics, Backscattering, Sound waves, Ice bottom surface.

34-3433
Vibration of measuring equipment in the study of the ocean microstructure under the drifting ice.
Gusev, A.V., et al. Ocean '74 IEEE International Conference on Engineering in the Ocean Environment, Halifax, Nova Scotia, Aug. 21-23, 1974. Record, Vol.2, New York, Institute of Electrical and Electronic Engineers, 1975, p.237-238.
Poliakov, A.P.
Subglacial observations, Measuring instruments, Vibration, Microstructure, Drift, Oceanography, Ocean currents, Flow rate, Water temperature, Salinity, Underwater acoustics.

34-3434
Preliminary classification system for vegetation of Alaska.
Viereck, L.A., et al. *U.S. Pacific Northwest Forest and Range Experiment Station, Portland, Oregon. U.S. Forest Service general technical report*, May 1980, PNW-106, 38p., Refs. p.31-38.
Dyrness, C.T.
Vegetation, Plants (botany), Classifications, Polar regions, United States—Alaska.

34-3435
Great Lakes navigation season, 1979.
Wilson, E.E., *Mariners weather log*, May-June 1980, 24(3), p.183-195.
Ice navigation, Lake ice, Ice conditions, Remote sensing, United States—Great Lakes.

34-3436
Concentration of impurities by progressive freezing.
Halde, R., *Water research*, 1980, 14(6), p.575-580, 10 refs.
Artificial freezing, Freezing rate, Impurities, Suspended sediments, Sludges, Ice water interface, Waste treatment, Ice crystal growth, Liquid solid interfaces, Shear stress, Chemical composition.

34-3437
Proceedings.
Symposium on Marine Transportation and High Arctic Development: Policy Framework and Priorities, Montebello, Quebec, March 21-23, 1979, Ottawa, Canadian Arctic Resources Committee, 1979, 271p., Refs. passim. For selected papers see 34-3438 through 34-3440.
Marine transportation, Ice navigation, Petroleum transportation, Economic development, Environmental impact, Natural resources, Ocean environments.

34-3438
Breaking the ice with COTRA.
Pallister, A.E., Symposium on Marine Transportation and High Arctic Development: Policy Framework and Priorities, Montebello, Quebec, March 21-23, 1979. Proceedings, Ottawa, Canadian Arctic Resources Committee, 1979, p.15-29, Refs. p.26-29.
Ice breaking, Sea ice, Ice navigation, Economic development, Climatic factors, Ocean environments.

34-3439
Environmental aspects of Arctic marine transportation and development.
Roots, E.F., Symposium on Marine Transportation and High Arctic Development: Policy Framework and Priorities, Montebello, Quebec, March 21-23, 1979. Proceedings, Ottawa, Canadian Arctic Resources Committee, 1979, p.69-96, 2 refs.
Marine transportation, Economic development, Ocean environments, Polar regions, Sea ice, Ice navigation.

34-3440
Petroleum development in northern Alaska.
Bregha, F., Symposium on Marine Transportation and High Arctic Development: Policy Framework and Priorities, Montebello, Quebec, March 21-23, 1979. Proceedings, Ottawa, Canadian Arctic Resources Committee, 1979, p.223-253, 21 refs.
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Gas pipelines, Cold weather construction, Pipe laying.

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34-3444
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34-3447
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Ice crystal growth, Ice crystal nuclei, Supercooled clouds, Hoarfrost, Heat loss, Freezing nuclei, Particle size distribution, Temperature effects, Experimentation.

34-3448
Undersea pipelines and cables in polar waters.
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Pipelines, Transmission lines, Hydraulic structures, Damage, Engineering, Excavation, Sea ice, Subsea permafrost, Ice scoring, Polar regions.
Special environmental factors that influence the design, laying and maintenance of undersea pipelines and cables in polar waters are described. Various approaches to the protection of submarine pipes and cables are considered, and prime emphasis is given to burial techniques for shallow water. A wide range of methods for trenching and burying are discussed, and technical data are given.

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Five-year performance of CRREL land treatment test cells; water quality plant yields and nutrient uptake.
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The performance of the six land treatment cells is summarized over a five-year period from June 1937 through May 1978. The data presented include quality and volume of wastewater applied and percolate resulting from application of primary and secondary wastewater by spray irrigation. Mass loadings and removals are presented as well as crop production and nutrient uptake. Nutrient balance sheets are shown which demonstrate the percentage of nitrogen and phosphorus that is attributed to crop uptake and leachate over this period.

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Influence of nose shape and L/D ratio on projectile penetration in frozen soil.
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Frozen ground, Projectile penetration, Solutions, Experimentation.
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Ice prevention, Antennas, Spacecraft, Protective coatings, Heating, Thermal effects, Polymers.
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34-3455
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34-3458
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34-3459
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34-3460
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34-3461
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34-3462
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34-3468
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Ice navigation, Icebreakers, Ice breaking, Noise (sound).

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34-3481
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34-3482
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34-3483
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34-3484
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Ice adhesion, Ice prevention, Protective coatings, Helicopters, Tests.
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34-3485
1979 Greenland Ice Sheet Program. Phase 1: casing operation.
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Ice drills, Thermal drills, Glaciology, Linings, Greenland.
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34-3486
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34-3491
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34-3492
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34-3493
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34-3495
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34-3501
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Nohguchi, Y.
Sea ice, Ice floes, Interfaces, Drift, Ice mechanics, Ocean currents, Velocity, Wind factor, Analysis (mathematics).

34-3502
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Kawamura, T., *Low temperature science (Teion kagaku). Series A Physical sciences,* 1979, No.38, p.161-168, 7 refs., In Japanese with English summary.
Pack ice, Sea ice distribution, Drift, Ice mechanics, Wind factor, Ocean currents, Radar echoes.

34-3503
Frost heave under overburden pressure.
Ishizaki, T., et al, *Low temperature science (Teion kagaku). Series A Physical sciences,* 1979, No.38, p.169-178, 14 refs., In Japanese with English summary.
Kinoshita, S.
Frost heave, Soil freezing, Soil water, Pressure, Temperature effects, Soil pressure.

34-3504
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Ishikawa, N., *Low temperature science (Teion kagaku). Series A Physical sciences,* 1979, No.38, p.179-182, 5 refs., In Japanese.
Snow surface, Air temperature, Heat transfer.

34-3505
In situ wind tunnel for snow accretion experiments using natural snowflakes.
Wakahama, G., et al, *Low temperature science (Teion kagaku). Series A Physical sciences,* 1979, No.38, p.183-187, 6 refs., In Japanese.
Kobayashi, S., Tusima, K.
Wind tunnels, Snow accumulation, Snowflakes, Experimentation.

34-3506
Development of data recorder for cold condition.
Oi, M., et al, *Low temperature science (Teion kagaku). Series A Physical sciences,* 1979, No.38, p.189-191, 3 refs., In Japanese.
Fukushi, H.
Low temperature research, Data processing, Computer applications.

34-3507
Measurement of hydraulic conductivity of unsaturated Tomakomai silt.
Fukuda, M., *Low temperature science (Teion kagaku). Series A Physical sciences,* 1979, No.38, p.193-195, 4 refs., In Japanese.
Soil water, Hydraulics, Permeability, Water pressure, Tests.

34-3508
Controlling method for constant freezing front advancing rate in freezing soils.
Fukuda, M., *Low temperature science (Teion kagaku). Series A Physical sciences,* 1979, No.38, p.197-200, 3 refs., In Japanese.
Soil freezing, Freezing rate, Frost penetration, Time factor, Computer applications.

34-3509
USCGC Glacier cruise report: Deep Freeze 80.
U.S. Coast Guard, Long Beach, Cal., Mar. 1980, 106p.
Ice breaking, Ships, Logistics, Ice navigation, Antarctica.
The scientific mission during this deployment was primarily a marine geologic survey of the antarctic continental margin from 163W to Cape Adare southward to McMurdo. An extensive survey of McMurdo Sound was included. *Glacier's* primary objective was to obtain data from those areas never before surveyed in order to connect with data obtained from previous cruises. The operational and logistics mission, in direct support of the resupply of McMurdo, consisted of escort service for the resupply vessels, facing the ice wharf, and towing out the ice wharf upon completion of the offloads.

34-3510
Diatomaceous algae of fresh-water bodies on the Chukotskiy Peninsula. [K izucheniiu diatomovykh vodoroslei presnykh vodoemov Chukotskogo poluostrova],
Kharitonov, V.G., Flora i rastitel'nost' Chukotki (Vegetation of Chukotka) edited by A.P. Khokhriakov. Vladivostok, 1978, p.118-121, In Russian. 5 refs.
Arctic landscapes, Tundra, Swamps, Lakes, Algae.

34-3511
Proceedings.
Workshop on Operational Applications of Satellite Snowcover Observations, Final, Sparks, Nevada, April 16-17, 1979, NASA conference publication 2116, Greenbelt, Md., NASA Goodard Space Flight Center, May, 1980, 301p., Refs. passim. For individual papers see 33-3213 through 33-3215 and 34-2512 through 34-3525.
Rango, A., ed, Peterson, R., ed.
Snow cover distribution, Remote sensing, Mapping, LANDSAT, Runoff forecasting, Snowmelt, Computer applications, Spaceborne photography.

34-3512
NOAA/NESS program for operational snowcover mapping: preparing for the 1980's.
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Snow cover distribution, Remote sensing, Mapping.

34-3513
New goals for snow monitoring by satellite.
Wiesnet, D.R., Workshop on Operational Applications of Satellite Snowcover Observations, Final, Sparks, Nevada, April 16-17, 1979. Proceedings. Edited by A. Rango and R. Peterson, Greenbelt, Md., NASA Goddard Space Flight Center, May 1980, p.41-51, 17 refs.
Snow cover distribution, Remote sensing, Mapping, Snow water equivalent, Albedo, Snow optics, Atmospheric attenuation.

34-3514
Mapping New Zealand and Antarctic snowpack from LANDSAT.
Thomas, I.L., et al, Workshop on Operational Applications of Satellite Snowcover Observations, Final, Sparks, Nevada, April 16-17, 1979. Proceedings. Edited by A. Rango and R. Peterson, Greenbelt, Md., NASA Goddard Space Flight Center, May 1980, p.53-72, 19 refs.
Prowse, T.D., Owens, I.F.
Snow cover distribution, Sea ice distribution, Snow depth, Snow density, Remote sensing, LANDSAT, Mapping, Computer applications, Monitors.
Computer mapping, based on the Landsat digital data, can aid the efficient management of one of New Zealand's resources the annual snowpack. The same techniques are effective in supporting antarctic cartography, glaciology, and surface operations. The development of digital analysis and enhancement techniques for the routine semi-automated evaluation of Landsat data is illustrated. The 1979 field program will concentrate on an instrumented snow basin for a water yield study. An outline of this satellite ground program is presented. (Auth.)

34-3515
Application of satellite data for snow mapping in Norway.
Odegaard, H.A., et al, Workshop on Operational Applications of Satellite Snowcover Observations, Final, Sparks, Nevada, April 16-17, 1979. Proceedings. Edited by A. Rango and R. Peterson, Greenbelt, Md., NASA Goddard Space Flight Center, May 1980, p.93-106, 14 refs.
Andersen, T., Østrem, G.
Snow cover distribution, Remote sensing, Meltwater, Runoff forecasting, Mapping.

34-3516
Satellite snowcover and runoff monitoring in central Arizona.
Schumann, H.H., et al, Workshop on Operational Applications of Satellite Snowcover Observations, Final, Sparks, Nevada, April 16-17, 1979. Proceedings. Edited by A. Rango and R. Peterson, Greenbelt, Md., NASA Goddard Space Flight Center, May 1980, p.107-126, 16 refs.
Kirdar, E., Warskow, W.L.
Snow cover distribution, Runoff forecasting, Remote sensing, LANDSAT, Snowmelt, Seasonal variations, Monitors.

34-3517
Use of satellite data in runoff forecasting in the heavily-forested, cloud-covered Pacific Northwest.
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Orwig, C.E.
Snow cover distribution, Runoff forecasting, Snow line, Forest land, Cloud cover.

34-3518
LANDSAT derived snowcover as an input variable for snowmelt runoff forecasting in south central Colorado.
Shafer, B.A., et al, Workshop on Operational Applications of Satellite Snowcover Observations, Final, Sparks, Nevada, April 16-17, 1979. Proceedings. Edited by A. Rango and R. Peterson, Greenbelt, Md., NASA Goddard Space Flight Center, May 1980, p.151-169, 5 refs.
Leaf, C.F.
Snow cover distribution, Snowmelt, Runoff forecasting, LANDSAT, Remote sensing, Snow hydrology.

34-3519
Graphical method of stream runoff prediction from LANDSAT derived snowcover data for watersheds in the upper Rio Grande basin of Colorado.
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Danielson, J.A.
Runoff forecasting, Snow cover distribution, Meltwater, LANDSAT, Remote sensing, Watersheds, Streams, Snow line.

34-3520
Application of snowcovered area to runoff forecasting in selected basins of the Sierra Nevada, California.
Brown, A.J., et al, Workshop on Operational Applications of Satellite Snowcover Observations, Final, Sparks, Nevada, April 16-17, 1979. Proceedings. Edited by A. Rango and R. Peterson, Greenbelt, Md., NASA Goddard Space Flight Center, May 1980, p.185-200, 3 refs.
Hannaford, J.F., Hall, R.L.
Snow cover distribution, Remote sensing, Runoff forecasting, Snowmelt, Cloud cover, Watersheds.

34-3521
Application of satellite imagery to hydrologic modeling snowmelt runoff in the southern Sierra Nevada.
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Hall, R.L.
Runoff forecasting, Snowmelt, Snow cover distribution, Snow hydrology, Remote sensing, Air temperature, Models.

34-3522
Cost/benefit analysis for the Operational Applications of Satellite Snowcover Observations (OASSO).
Castruccio, P.A., et al, Workshop on Operational Applications of Satellite Snowcover Observations, Final, Sparks, Nevada, April 16-17, 1979. Proceedings. Edited by A. Rango and R. Peterson, Greenbelt, Md., NASA Goddard Space Flight Center, May 1980, p.239-254, 8 refs.
Loats, H.L., Jr., Lloyd, D., Newman, P.A.B.
Snow cover distribution, Remote sensing, Snow hydrology, Runoff forecasting, Cost analysis.

34-3523
Snow extent measurements from geostationary satellites using an interactive computer system.
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Snow cover distribution, Remote sensing, Computer applications, Mapping.

34-3524
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Schneider, S.R., Danaher, E.J., Myers, G.I.
Snow cover distribution, Remote sensing, Mapping, Computer applications.

34-3525
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Salomonson, V.V., et al, Workshop on Operational Applications of Satellite Snowcover Observations, Final, Sparks, Nevada, April 16-17, 1979. Proceedings. Edited by A. Rango and R. Peterson, Greenbelt, Md., NASA Goddard Space Flight Center, May 1980, p.281-296, 12 refs.
Hall, D.K.
Snow water equivalent, Water reserves, LANDSAT, Remote sensing, Microwaves, Spaceborne photography, Computer applications.

34-3526
History of the Pevek Regional Administration of Hydrometeorology and Environmental Monitoring. [K istorii Pevekskogo territorial'nogo upravleniia po gidrometeorologii i kontroliu prirodnoi sredy],
Vlasov, E.G., et al, *Vladivostok. Dal'nevostochnyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.79, p.4-12, In Russian. 7 refs.
Chagulov, A.K.
Tundra, Ice conditions, Research projects, Meteorology, Arctic landscapes, Arctic Ocean.

34-3527
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Kupetskii, V.N., *Vladivostok. Dal'nevostochnyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.79, p.13-22, In Russian.
Ice navigation, Sea ice, Ice conditions, Ice reporting, Ice forecasting.

34-3528
Classifying synoptic processes in East Arctic regions during cold periods. [Tipizatsiia sinopticheskikh protsessov vostochnogo raiona Arktiki v kholodnyi period],
Dmitriev, A.A., *Vladivostok. Dal'nevostochnyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.79, p.23-25, In Russian. 5 refs.
Synoptic meteorology, Meteorological charts, Polar regions.

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Synoptic-statistical method of evaluating the possibility of southerly storm formation and velocity. [Sinoptiko-statisticheskii sposob otsenki vozmozhnosti vozniknoveniia iuzhaka i ego skorosti],
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Weather forecasting, Atmospheric disturbances, Wind velocity, Polar regions, USSR—Kolyma, Chukchi Sea.

34-3530
Fog at Cape Schmidt. [Tumany na myse Shmidta],
Makarov, A.K., et al, *Vladivostok. Dal'nevostochnyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.79, p.61-68, In Russian. 4 refs.
Pavlov, IU.N.
Shores, Ice fog, Fog formation, Forecasting, Arctic landscapes, Arctic Ocean.

34-3531
Ice loads at the Arctic shores of Chukotka. [Gololednye nagruzki na arkticheskom poberezh'e Chukotki],
Popova, O.P., *Vladivostok. Dal'nevostochnyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.79, p.69-72, In Russian. 6 refs.
Shores, Power line icing, Ice loads, Icing rate, USSR—Chukotskiy Peninsula.

34-3532
Allowing for annual groups of homogeneous development of air temperature anomalies in forecasting practices of the eastern Arctic. [O sposobe ucheta vnutrigodovykh grupp odnorodnogo razvitiia anomalii temperatury vozdukha v prognosticheskoi praktike na vostoke Arktiki],
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Ivanov, N.A.
Weather forecasting, Polar regions.

34-3533
Hydrosynoptic method of compiling sea ice forecasts. [O gidrosinopticheskom sposobe sostavleniia morskikh ledovykh prognozov],
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Ice navigation, Sea ice, Ice forecasting, Ice reporting.

34-3534
Marine naleds in the Chaunskaya Bay. [Morskie naledi Chaunskoi guby],
Chagulov, A.K., *Vladivostok. Dal'nevostochnyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.79, p.109-111, In Russian. 2 refs.
Naleds, Sea ice, Fast ice, Ice cracks, Ice roads.

34-3535
Winter regime of fast ice in the Chaunskaya Bay. [Zimnii rezhim pripaia Chaunskoi guby],
Konstantinov, IU.B., *Vladivostok. Dal'nevostochnyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.79, p.112-113, In Russian.
Sea ice, Fast ice, Ice cracks, Ice roads.

34-3536
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Chagulov, A.K.
Sea ice, Fast ice, Ice cover thickness, Ice surveys.

34-3537
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Estuaries, Offshore landforms, Ice navigation, Ice forecasting, Ice conditions, Ice reporting, Icebound rivers, Ice breakup, USSR—Kolyma River.

34-3538
Wind swell regime of the eastern Arctic shelf zone. [O rezhime volneniia v shel'fovoi zone Vostochnoi Arktiki].
IAgubov, I.M., *Vladivostok. Dal'nevostochnyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.79, p.133-134, In Russian. 3 refs.
Water waves, Wind factors, Wave propagation, Forecasting, Arctic Ocean.

34-3539
Stability of inertial bonds among massive ice areas. [Ob ustoichivosti inertsionnykh sviazei ploshchadei ledianykh massivov].
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Ice navigation, Ice forecasting, Ice formation, Ice melting, Arctic Ocean.

34-3540
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Ice cover, Marine biology, Drift, Ecosystems, Subglacial observations, Laboratories, Underwater facilities.

34-3541
Airborne gamma survey of soil moisture and snow cover. [Aviatsionnaia gamma-s"emka vlazhnosti pochvy i snezhnogo pokrova].
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Snow surveys, Airborne equipment, Gamma irradiation, Soil water, Snow density, Snow cover distribution, Mountains, Snow water equivalent.

34-3542
Introduction and development of airborne gamma surveying of snow cover and soil moisture. [Razvitie i vnedrenie aviatsionnoi gamma-s"emki snezhnogo pokrova i vlazhnosti pochvy].
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Snow surveys, Airborne equipment, Gamma irradiation, Soil water.

34-3543
Present state of airborne gamma surveys of snow cover and soil moisture. [Sovremennoe sostoianie aviatsionnykh gamma-s"emok snezhnogo pokrova i vlazhnosti pochvy].
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Airborne equipment, Gamma irradiation, Theories, Snow surveys, Mountains, Snow cover distribution, Soil water, Snow depth, Snow water equivalent, Accuracy.

34-3544
Experience in conducting airborne snow surveys over the European USSR. [Opyt proizvodstva samoletnykh snegos"emok na Evropeiskoi territorii SSSR].
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Snow surveys, Snow water equivalent, Soil water, Gamma irradiation, Airborne equipment, Data processing.

34-3545
Industrial application of airborne gamma surveying of snow cover in the Asiatic USSR. [Opyt proizvodstvennogo primeneniia aviatsionnoi gamma-s"emki snezhnogo pokrova na Aziatskoi territorii SSSR].
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Snow surveys, Gamma irradiation, Airborne equipment, Route surveys, Accuracy.

34-3546
Using airborne snow survey data in compiling hydrologic forecasts. [Opyt ispol'zovaniia rezul'tatov samoletnykh snegos"emok v operativnoi rabote po sostavleniiu gidrologicheskikh prognozov].
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Snow surveys, Gamma irradiation, Airborne equipment, Snow water content, Route surveys.

34-3547
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Snow surveys, Airborne equipment, Gamma irradiation, Snow water content, Route surveys.

34-3548
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River basins, Snow cover distribution, Snow surveys, Airborne equipment, Snow water content.

34-3549
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River basins, Snow cover distribution, Snow water content, Snow surveys, Airborne equipment, Gamma irradiation, USSR—Tien Shan.

34-3550
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Snow surveys, Airborne equipment, Gamma irradiation, Snow water content, Soil water, Measuring instruments.

34-3551
Determining snow depth on winter crop fields from aerial gamma survey data. [Opredelenie vysoty snega na poliakh s posevami ozimykh kul'tur po rezul'tatam samoletnykh gamma-s"emok snezhnogo pokrova].
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Snow surveys, Snow cover distribution, Snow depth, Airborne equipment, Measuring instruments, Gamma irradiation, Accuracy.

34-3552
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Snow surveys, Snow water equivalent, Measuring instruments.

34-3553
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Snow surveys, Airborne equipment, Data processing, Snow density, Statistical analysis.

34-3554
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Snow surveys, Soil water, Airborne equipment, Gamma irradiation, Measuring instruments.

34-3555
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Arctic landscapes, Plants (botany), Taiga, Forest tundra, Plant ecology.

34-3556
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Alpine tundra, Swamps, Taiga, Lichens, Mosses.

34-3557
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Arctic landscapes, Forest lines, Forest tundra, USSR—Taymyr Peninsula.

34-3558
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34-3560
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IUnusov, M.
Gas pipelines, Underground pipelines, Frozen ground, Heat transfer, Soil temperature, Soil water, Phase transformations.

34-3561
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Nikitina, V.G., Dolina Nizhnego Irtysha (Lower Irtysh River valley) edited by G.V. Bachurin and I.B Petrov, Irkutsk, 1978, p.81-88, In Russian. 7 refs.
DLC GB327.177D64
Cryogenic soils, Soil microbiology, Flood plains, USSR—Irtysh River.

34-3613
Experimental evaluation of polarization coefficients of light reflected from snow surfaces. [Eksperimental'naia otsenka koeffitsienta poliarizatsii sveta, otrazhaemogo snezhnoi poverkhnost'iu],
Mel'kher, A.N., et al, Kiev. *Ukrainskii nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.174, p.113-116, In Russian. 6 refs.
Volkov, A.D.
Snow optics, Solar radiation, Albedo, Reflection, Snow surface, Air pollution, Snow impurities.

34-3614
Correlation between physiological-biochemical indices of woody plants and hydrothermal conditions of media. [O korreliatsii fiziologo-biokhimicheskikh pokazatelei drevesnykh rastenii s gidrotermicheskimi usloviiami sredy],
Zhiboedov, P.M., et al, Botanicheskie issledovaniia za poliarnym krugom (Botanical studies beyond the Arctic circle) edited by L.M. Luk'ianova, Apatity, 1978, p.106-118, In Russian. 20 refs.
Zhirov, V.K., Rudenko, S.M.
DLC QK86 R9L67
Subarctic landscapes, Environmental protection, Human factors engineering.

34-3615
Water repellant plasticizing admixtures for cements, grouts and concretes. [Gidrofobno-plastifitsiruiushchie dobavki dlia tsementov, rastvorov i betonov],
Khigerovich, M.I., et al, Moscow, Stroiizdat, 1978, 125p., In Russian with English table of contents enclosed. 237 refs.
Baier, V.E.
Concretes, Frost resistance, Concrete admixtures, Waterproofing, Plastic properties, Surfactants, Concrete strength, Winter concreting.

34-3616
Icebreakers and coastal winter navigation in Finland. [Eisbrecher und Winterverkehr an den Küsten Finnlands], *Seewirtschaft*, May 1980, No.5, p.256-259, In German.
Ice navigation, Icebreakers, Sea ice distribution, Cold weather operation.

34-3617
Dynamics of hailstones.
Zoltán, C., *Időjárás*, Mar.-Apr. 1980, 84(2), p.78-82, In English with Hungarian summary. 5 refs.
Falling bodies, Hailstones, Dynamic properties, Meteorological factors, Wind velocity.

34-3618
Optimized linear variable differential transformer displacement transducer for cryogenic use.
Sponagle, N.C., et al, *Review of scientific instruments*, June 1980, 51(6), p.759-761, 2 refs.
Atherton, D.L.
Cryogenics, Low temperature research, Electric equipment, Transformers.

34-3619
Report on glaciological operations in 1978. [Relazioni della Campagna Glaciologica 1978], *Geografia fisica e dinamica quaternaria*, 1979, 2(2), p.129-166, In Italian.
Glacier surveys, Stereophotography, Glacier flow, Glacier tongues, Italy.

34-3620
Particular landforms of glacial deposition in the terminal area of the Pisgana Glacier (Rhaetian Alps, Adamello Group). [Particolari forme di deposito glaciale nell'area terminale del Ghiacciaio del Pisgana (Alpi Retiche, gruppo dell'Adamello)],
Smiraglia, C., *Geografia fisica e dinamica quaternaria*, 1979, 2(2), p.167-172, In Italian with English summary. 30 refs.
Glacial deposits, Geomorphology, Landforms, Sediments, Italy—Alps.

34-3621
Nucleation of ice by sorption on monodisperse silver iodide particles in the 20-1200A diameter size range.
Rosinski, J., et al, *Journal of physical chemistry*, June 12, 1980, 84(12), p.1464-1468, 22 refs.
Cooper, G., Kerrigan, T.C.
Ice nuclei, Ice crystal growth, Nucleating agents, Silver iodide, Particles.

34-3622
Water and ice nucleation sites from ion implantation of silicon.
Stinebaugh, W.H., et al, *Journal of physical chemistry*, June 12, 1980, 84(12), p.1469-1473, 13 refs.
Sparlin, D.M., Kassner, J.L.
Ice crystal nuclei, Ice crystal growth, Heterogeneous nucleation, Ions, Cold chambers, Damage, Silicon.

34-3623
Ice core and ice cement effects on soil development, eastern Wright Valley, Antarctica.
Bockheim, J.G., *New Zealand journal of geology and geophysics*, 1979, 22(4), p.487-493, 20 refs.
Ground ice, Soil formation, Antarctica—Wright Valley.
The presence of an ice core or ice cement has arrested soil formation on hummocky drift behind Trilogy, Loop, and C end moraines in eastern Wright Valley. Soils on the Trilogy and Loop hummocks contain fewer salts and are coarser in texture than soils on the associated end moraines. Lack of soil development on hummocks is due to frost heaving and sorting, and while soils on hummocks behind the Loop end moraine may be as old as c. 135,000 y. B.P., they have properties more closely resembling the 18,000-year-old Trilogy soils. Data suggest that soil chronosequences may be invalid where component soils have been disturbed by frost action, and that soils on comparable sites must be used for comparative weathering studies. (Auth.)

34-3624
International Workshop on the Seasonal Sea Ice Zone, Monterey, California, Feb. 26-Mar.1, 1979.
Andersen, B.G., ed, *Cold regions science and technology*, Apr. 1980, Vol.2, MP 1292, 357p., For individual papers see 34-3625 through 34-3632 or B-23446, F-23442 through F-23445, and F-23447.
Weeks, W.F., ed, Newton, J.L., ed.
Meetings, Sea ice, Pack ice, Ice pileup, Acoustics, Climatology, Ecology, Oceanography.
This volume comprises a series of state-of-the-art papers by individual authors, followed by disciplinary panel statements offering research suggestions and identifying particular problems with the discipline under consideration. Several interdisciplinary panel reports are included - air-sea-ice interactions, biological interactions, engineering interactions, and acoustic interactions.

34-3625
Overview [International Workshop on the Seasonal Sea Ice Zone].
Weeks, W.F., *Cold regions science and technology*, Apr. 1980, Vol.2, MP 1293, p.1-35, 2 refs.
Sea ice distribution, Seasonal variations, Meetings, Models, Air water interactions, Ice water interface, Meteorology, Engineering, Oceanography, Offshore drilling.
This overview is an attempt to summarize the principal conclusions that can be drawn from the workshop. The article is divided into three sections: disciplinary studies (ice, oceanography, meteorology and climatology, biological regimes, hydroacoustics, coastal processes), interdisciplinary studies; and engineering aspects of offshore resource exploration in the polar regions. Modeling of a wide variety of processes is discussed.

34-3626
Ice characteristics in the seasonal sea ice zone.
Wadhams, P., *Cold regions science and technology*, Apr. 1980, Vol.2, p.37-92, Refs. p.81-87. Includes disciplinary panel statement, p.90-92.
Fast ice, Wave propagation, Ice breakup, Shear properties, Models, Frazil ice, Young ice.
Although the bulk of this article is devoted to north polar ice, antarctic sea ice is discussed briefly, primarily to point out the great scarcity of facts known about it and to stress the entirely different nature of antarctic sea ice from arctic.

34-3627
Physical oceanography of the seasonal sea ice zone.
McPhee, M.G., *Cold regions science and technology*, Apr. 1980, Vol.2, MP 1294, p.93-132, Refs. p.116-118. Includes disciplinary panel statement, p.119-132.
Polynyas, Oceanography, Sea ice, Ice water interface, Seasonal variations, Salinity, Ice edge.
This literature review is divided into four parts. The first deals with the role of continental shelves at the margins of polar oceans in maintaining water masses, the second emphasizes how the ocean might affect the advance and retreat of ice not contained by land, the third describes some special conditions found in the shear zone, and the fourth is a brief look at experimental techniques and instruments.

34-3628
Meteorology and climatology of the seasonal sea ice zone.
Barry, R.G., *Cold regions science and technology*, Apr. 1980, Vol.2, p.133-156, Refs. p.147-150,156. Includes disciplinary panel statement.
Sea ice, Pack ice, Seasonal variations, Atmospheric circulation, Polynyas, Meteorology, Climatic factors, Ice air interface.
Since the seasonal sea ice zone is defined by the seasonal range of ice limits, its meteorological characterization is not readily described in a systematic manner. Moreover, the ice limits are not solely determined by meteorological factors, nor does the SSIZ set up a unique climatological regime. Accordingly, this literature survey reviews selected aspects of large-scale circulation processes and examples of specific regional interactions both in the Arctic and Antarctic. Problem areas are then identified.

34-3629
Interrelationships between the seasonal sea ice and biological regimes.
Alexander, V., *Cold regions science and technology*, Apr. 1980, Vol.2, p.157-184, Refs. p.175-178. Includes disciplinary panel statement.
Sea ice, Algae, Ecology, Biomass, Seasonal variations.
The relation of seasonal sea ice with biological regimes is discussed under the following headings: ice flora, ice-edge phyto- [illegible] invertebrates, fishes, birds and mammals. The current state of knowledge is reviewed and suggestions are made for further needed research.

34-3630
Arctic hydroacoustics.
Diachok, O., *Cold regions science and technology*, Apr. 1980, Vol.2, p.185-207, Refs. p.199-201. Includes disciplinary panel statement.
Ice acoustics, Sound waves, Noise (sound), Sea ice, Pack ice, Ice edge, Ice water interface, Wave propagation.

34-3631
Shore ice pile-up and ride-up: field observations, models, theoretical analyses.
Kovacs, A., et al, *Cold regions science and technology*, Apr. 1980, Vol.2, MP 1295, p.209-298, Refs. p.282-288. Includes disciplinary panel statement.
Sodhi, D.S.
Shores, Coastal topographic features, Ice pileup, Sea ice, Fast ice, Pressure ridges, Mathematical models.

34-3632
Numerical modeling of sea ice in the seasonal sea ice zone.
Hibler, W.D., III, *Cold regions science and technology*, Apr. 1980, Vol.2, MP 1296, p.299-356, Refs. p.317-320. Includes disciplinary panel statement.
Sea ice, Seasonal variations, Computerized simulation, Ice models, Mathematical models.
Various approaches to modelling sea ice have been tried by investigators; the author discusses the suitability of different types of simulations for particular research goals. Empirical studies are also reviewed. Literature covered relates to ice in both arctic and antarctic regions.

34-3633
Polar atmosphere-ice-ocean processes: a review of polar problems in climate research.
Polar Group, *Reviews of geophysics and space physics*, May 1980, 18(2), p.525-543, Refs. p.540-543.
Baker, D.J., Radok, U., Weller, G.
Research projects, Climatology, Oceanography, Sea ice, Ice air interface, Air water interactions, Models.
Interactions of the atmosphere, ice, and the oceans in the polar regions are reviewed in the context of global climate. Cryospheric processes and their feedback mechanisms are discussed, with emphasis on sea ice, the polar energy balance, meridional heat exchange processes in both the atmosphere and the ocean, and the paleoclimatic record stored in ice sheets and snow. Present modeling capabilities and parameterizations of polar ice, atmosphere, and ocean processes and their interactions are described. Further advances in our understanding of polar processes call for studies of ice dynamics and of energy transfers by radiation, convection, and advection, in both atmosphere and ocean. The relationship of the energy transfers to mesos-

cale and large-scale circulation features, to the moving pack ice boundaries, and to the annual growth and decay of ice in both hemispheres affects the energy balance and circulation and is a key factor in the global climate system. Further progress will demand systematic monitoring of climate processes in both polar regions, using an increasingly sophisticated satellite technology for the establishment of a polar climate data set. (Auth.)

34-3634
Development of a high-speed rotary snowplow (HTR-700).
Sasaki, T., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1979, TL 709, 27p., ADA-086 586, Translation from Engineering report, Vol.6, No.46, p.38-50.
Horikawa, G.
Snow removal, Snow accumulation, Snowdrifts, Equipment.
The development of a rotary snowplow designed to remove 3000 tons/hour of snow at a speed of 20 km/hr is described. The four-wheel-drive vehicle was designed for use in areas of Hokkaido where snow accumulation and drifting are a major problem. It is powered by a 700-hp diesel engine and weighs about 22,000 kg. The snow removal equipment consists of a two-stage blower with cone ribbon screw type auger. The device has been tested in heavy snow conditions with snowslides and drifting, with excellent results and only minor mechanical problems.

34-3635
Evaluating reliability of steel structures at low temperatures. [K otsenke nadezhnosti stal'nykh stroitel'nykh konstruktsiĭ pri nizkikh temperaturakh],
Sil'vestrov, A.V., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedeniĭ. Stroitel'stvo i arkhitektura*, 1980, No.3, p.9-13, In Russian. 9 refs.
Motselchik, E.A.
Steel structures, Cold weather performance.

34-3636
More accurate experimental value of shear strength of grounds. [K utochneniiu eksperimental'nykh znacheniĭ soprotivleniia gruntov sdvigu],
Zhikhovich, V.V., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedeniĭ. Stroitel'stvo i arkhitektura*, 1980, No.3, p.21-23, In Russian. 2 refs.
Clay soils, Shear strength, Test equipment, Accuracy.

34-3637
Frost resistant concretes with combined structure-modifying admixtures. [Morozostoĭkie betony s kompleksnymi modifikatorami struktury],
Gen', O.P., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedeniĭ. Stroitel'stvo i arkhitektura*, 1980, No.3, p.58-61, In Russian. 3 refs.
Air entrainment, Winter concreting, Concrete admixtures, Concrete strength, Concrete freezing, Frost resistance.

34-3638
Recording geothermal flow by thermal aerial survey. [O registratsii geotermal'nykh potokov teplovoĭ aeros"emkoĭ],
Shilin, B.V., et al, *Akademiia nauk SSSR. Doklady*, 1980, 252(2), p.321-323, In Russian. 7 refs.
Gornyĭ, V.I., Karizhenskiĭ, V.E.
Aerial surveys, Geothermy, Infrared photography, Photointerpretation, Airborne equipment.

34-3639
Microbiological description of northern taiga bog-podzolic soils.
Shamin, A.A., et al, *Soviet soil science*, Mar.-Apr. 1979, No.2, p.151-156, Translated from Pochvovedenie. 8 refs.
Varfolomeev, L.A.
Taiga, Landscape types, Permafrost distribution, Cryogenic soils, Forest soils, Soil microbiology.

34-3640
Morphogenetic profile analysis as a basis for the reconstruction of soil formation conditions (as exemplified by the permafrost soils of the Nercha Basin).
Gugalinskaia, L.A., et al, *Soviet soil science*, May-June 1979, No.3, p.261-273, Translated from Pochvovedenie. 18 refs.
Alifanov, V.M.
Cryogenic soils, Soil formation, Soil profiles, Forest land, Steppes.

34-3641
Aerial gamma survey of snow cover in mountains. [Ob aviatsionnoĭ gamma-s"emke snezhnogo pokrova v gorakh],
Nikiforov, M.V., *Meteorologiia i gidrologiia*, Jan. 1980, No.1, p.77-83, In Russian with English summary. 10 refs.
Snow surveys, Aerial surveys, Gamma irradiation, Snow cover distribution, Snow depth, Snow water equivalent.

34-3642
Pressure of ice field adfreezing to cylindrical supports of offshore oil well platforms with water-level fluctuations. [Vozdeĭstvie primerzshego ledianogo polia pri izmenenii urovnia vody na tsilindricheskie opory neftepromyslovykh platform],
Vershinin, S.A., et al, *Neftepromyslovoe stroitel'stvo*, 1980, No.4, p.9-11, In Russian.
Evdokimov, G.N.
Oil wells, Offshore structures, Supports, Ice loads, Water level.

34-3643
Speed of icebreaker movement in the Azov Sea. [Ledoprokhodimost' Azovskogo moria],
Siniurin, IU., *Morskoĭ flot*, 1980, No.3, p.20-21, In Russian.
Ice navigation, Icebreakers, Velocity, USSR—Azov Sea.

34-3644
Ice breaking rescue vessel. [Ledokol'noe spasatel'noe sudno], *Morskoĭ flot*, 1980, No.3, p.29, In Russian.
Icebreakers, Ice navigation, Rescue operations, Rescue equipment.

34-3645
Estimated glaze ice and wind loads at the earth's surface for the contiguous United States.
Tattelman, P., et al, *U.S. Air Force. Cambridge Research Laboratories. Air Force surveys in geophysics*, Oct. 16, 1973, No.277, 35p., AD-775 068, AFCRL-TR-73-0646, 4 refs.
Gringorten, I.I.
Ice storms, Wind pressure, Glaze, Ice loads, Loads (forces), Forecasting, Ice cover thickness, Statistical data, United States.

34-3646
Draft environmental impact statement, Prudhoe Bay Oil Field Waterflood Project.
U.S. Army Corps of Engineers, Alaska District, Anchorage, Alaska, June 1980, 2 vols., Refs. passim. No microfiche available.
Pipelines, Cold weather construction, Environmental impact, Environmental protection, Legislation, Pollution, Research projects, United States—Alaska—Prudhoe Bay.

34-3647
Vehicles for conditions in the North. *U.S. Army Foreign Science and Technology Center. Technical translation*, Mar. 1980, FSTC-HT-1271-79, 2p., Translation from Voenna tekhnika, 1974, No.1, p.31.
Vehicles, Thermal insulation, Polar regions, Design, Engines.

34-3648
Little Ice Age: Northern Hemisphere average observations and model calculations.
Robock, A., *Science*, Dec. 21, 1979, Vol.206, p.1402-1404, 30 refs.
Climatic changes, Ice age theory, Volcanic ash, Solar radiation, Models.

34-3649
Decay kinetics of excess electrons in crystalline ice.
Warman, J.M., et al, *Journal of physical chemistry*, May 15, 1980, 84(10), p.1240-1248, 50 refs.
Haas, M.P. de, Verberne, J.B.
Ice crystals, Ions, Dynamic properties, Electrons, Decay.

34-3650
Mechanism of formation of visible-absorbing excess electrons in crystalline ice near 273K.
Gillis, H.A., et al, *Journal of physical chemistry*, May 15, 1980, 84(10), p.1248-1252, 17 refs.
Teather, G.G., Ross, C.K.
Ice crystals, Physical properties, Temperature effects, Heavy water, Ions, Electrons.

34-3651
Absolute rate constant of the reaction OH + H2O2 to HO2 + H2O from 245 to 423K.
Keyser, L.F., *Journal of physical chemistry*, June 26, 1980, 84(13), p.1659-1663, 29 refs.
Hydrogen bonds, Low temperature research, Temperature effects.

34-3652
Portable drilling equipment for shallow permafrost sampling.
Veillette, J.J., et al, *Canada. Geological Survey. Paper*, 1980, No.79-21, 35p., In English with French summary. 30 refs.
Nixon, F.M.
Drills, Permafrost physics, Core samplers, Frozen ground strength, Compressive properties, Equipment.

34-3653
Glacial to interglacial changes in ocean chemistry.
Broecker, W.S., Jan. 1980, 27p. + figs. + append. Prepared for CIMAS Symposium. 23 refs.
Sea water, Water chemistry, Glacial meteorology, Paleoclimatology, Marine deposits, Ice cores, Drill core analysis.

34-3654
Classical European glacial stages: correlation with deep-sea sediments.
Kukla, G., *Nebraska Academy of Sciences. Transactions*, 1978, Vol.6, p.57-93, Refs. p.88-93.
Alpine glaciation, Radioactive age determination, Marine deposits, Paleoclimatology, Pleistocene, Loess, Climatic factors, Bottom sediment.

34-3655
Dynamics of snow and ice masses.
Colbeck, S.C., ed, MP 1297, New York, Academic Press, 1980, 468p., Numerous refs. passim., Numerous refs. For individual papers see 34-3656 through 34-3662 or F-23452 through F-23455.
DLC GB2403.2.D95
Ice sheets, Ice shelves, Glaciers, Sea ice, Icebergs.
This book reviews the dynamical aspects of snow and ice masses on the geophysical scale. It is divided into seven chapters, each of which describes the basic features of a particular snow or ice mass. In each chapter a conceptual framework is established on a physical basis, and a mathematical description is provided with as many references to the technical literature as space allows. No attempt is made to address particular applications of the information, but the physical and mathematical descriptions of the properties and processes provide for both an understanding of snow and ice masses and a basis through which particular problems can be addressed.

34-3656
Ice sheets and ice shelves.
Paterson, W.S.B., Dynamics of snow and ice masses, edited by S.C. Colbeck, New York, Academic Press, 1980, p.1-78, Refs. p.73-78.
GB2403.2.D95
Ice sheets, Ice shelves, Ice mechanics, Ice models, Ice temperature.
Ice sheet dynamics are discussed primarily in terms of the Antarctic and Greenland ice sheets. The treatment is subdivided into the following topics: theoretical background, flow of ice sheets; numerical modeling of ice sheet changes; flow of ice shelves; temperature in ice sheets and ice shelves; and instabilities in ice sheets.

34-3657
Temperate valley glaciers.
Raymond, C.F., Dynamics of snow and ice masses, edited by S.C. Colbeck, New York, Academic Press, 1980, p.79-139, Refs. p.135-139.
DLC GB2403.2.D95
Valleys, Glaciers, Glacier surges, Glacier mass balance, Glacier flow, Glacier oscillation, Rheology, Creep, Stresses.

34-3658
Sea ice growth, drift, and decay.
Hibler, W.D., III, MP 1298, Dynamics of snow and ice masses, edited by S.C. Colbeck, New York, Academic Press, 1980, p.141-209, Refs. p.205-209.
DLC GB2403.2.D95
Drift, Sea ice, Thickness, Ice cover thickness, Ice surface, Ice formation, Models, Ice strength, Simulation.
This review of the dynamics of sea ice is organized into the following sections: general characteristics of sea ice; physics of sea ice growth, drift and decay (ice thickness distribution, thermal processes and ice drift and deformation); and numerical simulation of sea ice growth, drift and decay.

34-3659
Iceberg drift and deterioration.
Robe, R.Q., Dynamics of snow and ice masses, edited by S.C. Colbeck, New York, Academic Press, 1980, p.211-259, Refs. p.257-259.
DLC GB2403.2.D95
Icebergs, Drift, Ice melting.
This review comprises five aspects of icebergs: their sources; global drift patterns; local iceberg drift (forces such as wind and water drag and Coriolis force); deterioration (wave effects, heat transfer from water and radiation); and future trends in research.

34-3660
Freshwater ice growth, motion, and decay.
Ashton, G.D., MP 1299. Dynamics of snow and ice masses, edited by S.C. Colbeck, New York, Academic Press, 1980, p.261-304, Refs. p.302-304
DLC GB2403.2 D95
Lake ice, River ice, Frazil ice, Rivers, Ice jams, Ice breakup, Ice melting, Ice floes, Ice formation.

34-3661
Seasonal snow cover.
Male, D.H., Dynamics of snow and ice masses, edited by S.C. Colbeck, New York, Academic Press, 1980, p.305-395
DLC GB2403.2 D95
Snow thermal properties, Snow mechanics, Snowdrifts, Turbulent diffusion, Snow density, Snow accumulation.
A review of the literature, this articles deals with the following aspects of snow cover: metamorphism of dry snow: equitemperature and temperature gradient metamorphism, properties of dry snow, both mechanical and thermal, blowing snow: turbulent diffusion, saltation, sublimation, accumulation and erosion, snowmelt, and wet snow.

34-3662
Avalanche release, motion, and impact.
Perla, R.I., Dynamics of snow and ice masses, edited by S.C. Colbeck, New York, Academic Press, 1980, p.397-462, Refs. p.456-462
DLC GB2403.2 D95
Avalanches, Avalanche triggering, Avalanche mechanics, Shear stress.

34-3663
Investigation of aerosol fallout in long-range pollutant transport. [Issledovanie vypadenii aerozolei pri dal'nem perenose zagriazniaiushchikh veshchestv].
Zhigalovskaia, T.N., et al, *Meteorologiia i gidrologiia*, 1980, No.4, p.47-51
Nazarov, I.M., Fridman, S.D., Renne, O.S.
Snow impurities, Aerosols, Air pollution, Metals.

34-3664
Short-range forecasting of fall and winter ice dam levels on the lower Volga at Chernyy Yar. [Kratkosrochnyi prognoz osenne-zimnikh zatornykh urovnei na nizhnei Volge po punktu Chernyi IAr].
Bukharitsin, P.I., *Meteorologiia i gidrologiia*, 1980, No.4, p.90-95, In Russian with English summary. 25 refs.
Ice dams, Ice jams, River ice, Seasonal variations, USSR—Volga River.

34-3665
USCGC *Polar Sea* cruise report: Deep Freeze 80.
U.S. Coast Guard, Seattle, Washington, May 1980, 96p.
Ice breaking, Icebreakers, Ice navigation, Ships.
This report on the Coast Guard cutter *Polar Sea's* activities during Operation Deep Freeze 80 is divided into the following sections: ship operations; air operations, navigation, communications, science, engineering, administration, supply and logistics, medical, public relations, personnel; and recommendations.

34-3666
Timan-Pechora Complex. Construction problems. [Timano-Pechorskii kompleks. Problemy stroitel'stva].
Kochurin, N.N., Syktyvkar, Komi knizhnoe izd-vo, 1979, 167p., In Russian with English table of contents enclosed.
Arctic landscapes, Economic development, Petroleum industry, Construction, Forestry, Mining, Environmental protection, Urban planning.

34-3667
Ship icing. [Obledenenie sudov].
Aksiutin, L.R., Leningrad, Sudostroenie, 1979, 127p., In Russian with English table of contents enclosed. 86 refs.
Ship icing, Icing rate, Ice accretion, Ice prevention.

34-3668
Far North: nature and man. Prospects of economic development. [Sever: priroda i chelovek. Perspektivy osvoeniia].
Kriuchkov, V.V., Moscow, Nauka, 1979, 127p., In Russian with English table of contents enclosed. 43 refs.
Arctic landscapes, Natural resources, Economic development, Environmental protection, Construction, Agriculture, Cryogenic soils, Vegetation.

34-3669
Cross-section, velocity, and bedload data at two erosion sites on the Tanana River near Fairbanks, Alaska, 1979.
Burrows, R.L., *U.S. Geological Survey. Open-file report*, 1980, No.80-699, 32p., 4 refs.
River flow, Shore erosion, Loads (forces), Sediment transport, Particle size distribution, Water erosion, United States—Alaska—Tanana River.

34-3670
Ice problems at a cooling water intake in a tidal estuary at Lingan, N.S.
Skarborn, S., et al, *Canadian journal of civil engineering*, June 1980, 7(2), p.225-232, 11 refs.
Korol, T.
Ice loads, Water intakes, Impact strength, Offshore structures, Cooling systems, Ice solid interface, Salt water, Water waves, Design, Ice conditions.

34-3671
Dynamic response of bridge piers to ice forces.
Montgomery, C.J., et al, *Canadian journal of civil engineering*, June 1980, 7(2), p.345-356, 19 refs.
Gerard, R., Lipsett, A.W.
Piers, Bridges, Ice loads, Impact strength, Dynamic loads, Ice breakup.

34-3672
Plotting through the pack; radar resistant ice.
Haines, S.A., *Science dimension*, 1980, 12(3), p.16-19, In English and French.
Ice navigation, Remote sensing, Pack ice, Ice conditions, Ice strength, Ice cover thickness, Ice water interface, Sounding, Helicopters.

34-3673
Desalination of brackish water by spray freezing; progress report 1978-79.
Spyker, J.W., *Saskatchewan Research Council Technical report*, May, 1980, No.106, 116p., 32 refs.
Desalting, Sea spray, Artificial freezing, Salt water.

34-3674
Petrographic observations of ice samples from Taylor Glacier, Antarctica.
Robinson, P.H., *New Zealand antarctic record*, 1979, 2(1), p.17-19, 2 refs.
Glacier ice, Stratification, Rocks, Regelation, Antarctica—Taylor Glacier.
There are basically two petrographically-defined zones in the ice of Taylor Glacier: (1) the dominant, debris-free, weakly foliated, very fine to fine-grained bubbly ice, and 2) the subordinate, restricted englacial and basal debris-bearing, strongly-foliated, fine to medium-grained, alternating bubbly and clear ice. The bubbly ice zone gains its structure from "normal" primary stratification of the snow and firn in the accumulation areas and subsequent modification by densification and flow. The origin of the alternating bubble and clear ice layers is rather more complex. Possibilities include: 1) melting by frictional drag along faults subparallel to the glacier bed, where bubbles escaping from this melted layer float upwards and are subsequently refrozen, leaving behind clear ice and 2) bubble layering in 'cold' glacier ice was considered to result from a redistribution of bubbles during flow along primary stratification planes. Regelation by englacial fractional drag may be a likely mode of formation of clear, debris-free ice layers of Taylor glacier. However, it does not explain the debris-rich alternating bubbly and clear ice layers towards the base of the ice margin. A more probable origin for such zones is pressure melting and regelation at the glacier sole. (Auth. mod.)

34-3675
Saline discharge at the snout of Taylor Glacier, Antarctica.
Keys, J.R., *New Zealand antarctic record*, 1979, 2(1), p.20-21, 6 refs.
Glacier melting, Glacial hydrology, Meltwater, Salt water, Salinity, Antarctica—Taylor Glacier.
At intervals of one to a few years, during the "non summer" months, some thousands of cubic metres of salty water flows out from either a crevasse at the northern corner of the snout of Taylor Glacier, or a source beside the glacier near this crevasse. This fluid freezes to form an outwash fan (cone), or platform, of saline ice on the debris-covered mound and delta beside the glacier. The saline ice fan is usually various shades of orange in colour, due to small amounts of hydrated iron oxides and silt. In the summers and years between such discharge events, the ice fan ablates until there is no saline ice remaining on the mound or delta. However, salty orange englacial layers, present throughout the history of each individual discharge event, remain around the discharge site in the glacier. It is believed that these layers represent crevasses that were flooded with salty water, which then froze, during past discharge events. Field investigations were carried out in Oct. 1978 and Jan. 1979 and a simple model for the discharge was drawn up. (Auth. mod.)

34-3676
Eastward ice advances in Wright Valley, Antarctica (Comment).
Robinson, P.H., *New Zealand antarctic record*, 1979, 2(1), p.22-24, 7 refs. Includes reply by G.G.C. Claridge and I.B. Campbell.
Glacier flow, Antarctica—Wright Valley.
The author postulates a small, hitherto undescribed granite outcrop to the east of the Wright Upper Glacier as the provenance of granite erratics described by Claridge and Campbell (1978), who reply in rebuttal of the hypothesis.

34-3677
Hardness of ice and a solar ice melter.
Robinson, W.H., et al, *New Zealand antarctic record*, 1979, 2(2), p.4-8, 4 refs.
Bibby, B., Tucker, A., Haskell, T., Rodgers, T.
Ice hardness, Sea ice, Solar radiation, Equipment, Ice melting.
A simple rig for measuring the displacement of a 6.35 mm diameter steel ball into ice under load (10 to 30 N) was developed in the laboratory and used on the ice at Taylor Glacier (near Finger Mountain at the snout) and on the sea ice in McMurdo Sound. As expected the depth of indentation, h, into the ice varied with time, t. When the results were analyzed to produce a stress-strain rate curve, they were found to be in good agreement with the dislocation model of creep, where the strain rate is proportional to applied stress. Another project was the testing of a solar collector designed to melt snow or ice. Over a 6-hour period (1000 to 1600 hrs 22 Nov. 1978) the 0.5 sq meter collector produced 3 1/2 litres of water from snow, with the surrounding air temperature at -7 to -15C. (Auth. mod.)

34-3678
Impact of "extreme" events on the Dry Valleys area.
Chinn, T.J.H., *New Zealand antarctic record*, 1979, 2(2), p.9-13, 3 refs.
Glacial hydrology, Glacier melting, Microclimatology, Antarctica—Wright Valley, Antarctica—Vanda, Lake, Antarctica—Onyx River.
Because the Dry Valleys of Antarctica are climatically sensitive environments where the effects of rare extreme events may create substantial and enduring features, the glaciology hydrology research group reports here two such events and their immediate effects: "heat waves" (temperatures five degrees above normal during January), an unusually heavy snowfall, and an unexplained heavy flow in the Onyx River.

34-3679
Concreting in Antarctica.
Varcoe, G.E., *New Zealand antarctic record*, 1979, 2(2), p.14-15, 1 ref.
Concrete aggregates, Construction materials, Concretes, Concrete strength, Antarctica—Ross Island.
This note summarizes the results of concreting in Antarctica, using local aggregate and simple techniques. During the 1977-78 season (Varcoe 1978) various mixtures made with local aggregates were tested in order to determine strength and workability of mix. The aggregate selected as a result of these tests was no longer available in 1979-80, and the only aggregate available lacked "fines". Despite sub-zero temperatures and poor quality of local aggregate (generally vesicular volcanic scoria and vesicular tuff) satisfactory open-air concreting, using only very simple techniques, is possible at Ross Island. If accurate and predictable control of mix is required, a screen and crusher must be used to control quality of aggregate. (Auth. mod.)

34-3680
Undulations on the McMurdo Ice Shelf near Scott Base, Antarctica.
Holdsworth, G., et al, *New Zealand antarctic record*, 1979, 2(2), p.16-22, 17 refs.
Heine, A.J.
Surface roughness, Surface properties, Ice shelves, Stresses, Ice deformation, Plastic deformation, Ice density, Ice models, Antarctica—McMurdo Sound.
Near Scott Base, a restricted area of the McMurdo Ice Shelf shows prominent surface undulations. The deformation is evidently caused by compressive forces which are transmitted horizontally through the ice shelf as it flows obliquely into the coastline northeast of Pram Point. The ice is assumed to be everywhere free of the sea bed, and the deformation begins as the horizontal compressive stress reaches a critical value to initiate an instability. Some borehole data are presented together with some surface strain rates in an attempt to quantify the deformation. In order to do this successfully, we conclude that more observations are necessary. (Auth.)

34-3681
Metallurgical examination of some ice screws.
Redfern, R.M., *New Zealand antarctic record*, 1979, 2(2), p.23-29, 4 refs.
Low temperature tests, Metals, Mechanical tests.
"Salewa" ice screws and pitons have been manufactured from both medium and low carbon steels. The former material has a tensile strength of the order of 800 MPa and is likely to give rise to brittle failures at low temperatures, while the latter has a lower strength of the order of 540 MPa, but is not likely to fail in a brittle manner at low temperatures unless strain-aged. The "Chouinard" ice screw was made from a heat-treated high strength alloy of the order of 1230 MPa and is unlikely to give rise to brittle failure at low temperatures. The "Inter-Alp" ice screw examined was made from the lowest strength material (of the order of 300 MPa) of the samples, yet poor metallurgical practice has also given rise to doubts concerning its ductile/brittle behavior at low temperatures. (Auth.)

34-3682
Laboratory investigation of river shoreline ice jam forces.
Stewart, D.M., Bozeman, Montana State University, May 1980, 172p., M.S thesis 12 refs
Ice jams, Ice loads, Impact strength, Ice mechanics, Shear strength, Ice friction, River ice, Floating ice, Experimentation, Ice models.

34-3683
Optimal Stefan type problem. [Ob odnoi optimal'noi zadache tipa Stefana].
IUrii, A.D., *Akademiia nauk SSSR. Doklady*, 1980, 251(6), p.1317-1321, In Russian. 10 refs.
Heat transfer, Mass transfer, Phase transformations, Stefan problem.

34-3684
Workshop of the Glaciology Section and tutorial seminar, Zvenigorod, June 1979. [Rabochee soveshchanie sektsii gliatsiologii i shkola-seminar v Zvenigorode v iiune 1979 goda].
Barbash, V.R., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.37, p.5-29, In Russian.
Meetings, Sea ice, Icebergs, Snow cover distribution, Maps, Snow accumulation, Avalanche forecasting, Naleds, Mountain glaciers.

34-3685
Resolutions of the Glaciology Section workshop, June 1979. [Rezoliutsiia rabochego soveshchaniia sektsii gliatsiologii, iiun' 1979 goda], *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.37, p.29-33, In Russian.
Naleds, Mapping, Meetings, Sea ice, Snow cover, Climatology, Oceanography, Models, Research projects, Engineering glaciology.

34-3686
All-Union seminar on the organization of avalanche service. [Vsesoiuznyi seminar-soveshchanie po organizatsii sluzhby preduprezhdenii o lavinnoi opasnosti].
Grishchenko, V.F., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.37, p.33-36, In Russian.
Kanaev, L.A., Kulinich, S.V.
Meetings.

34-3687
Mapping ice thickness on rivers and lakes. [O kartirovanii tolshchiny l'da na rekakh i ozerakh].
Falko, L.I., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.37, p.36, In Russian.
Ice cover thickness, River ice, Lake ice, Mapping.

34-3688
Interrelations and succession in the compilation of thematic sections of the World Atlas of Snow and Ice Resources. [O vzaimosviaziakh i posledovatel'nosti sostavleniia tematicheskikh razdelov Atlasa snezhno-ledovykh resursov mira].
Dreier, N.N., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.37, p.37-42, In Russian with English summary. 5 refs.
Maps, Snow cover, Avalanches, Glacier ice, Mountain glaciers, Alpine glaciation, Glacial hydrology, Ground ice, Naleds, River ice, Lake ice.

34-3689
Compiling 1:600 000 glacier morphology maps of the eastern Pamirs and the Juneau Ice Field. [Osobennosti sostavleniia kart morfologii lednikov masshtaba 1:600 000 (na primere Vostochnogo Pamira i Lednikovogo polia Dzhuno)].
Varnakova, G.M., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.37, p.42-47, In Russian with English summary. 10 refs.
Zverkova, N.M.
Maps, Topography, Glacial hydrology, USSR—Pamirs.

34-3690
Morphological properties of the Tien Shan glacier system in the 1:1 500 000 maps of the World Atlas of Snow and Ice Resources. [Morfologicheskie kharakteristiki lednikovoi sistemy Tian'-Shania na kartakh masshtaba 1:1 500 000 v Atlase snezhno-ledovykh resursov mira].
Vinogradov, O.N., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.37, p.47-56, In Russian with English summary. 12 refs.
Konovalova, G.I., Psareva, T.V.
Mountain glaciers, Maps, USSR—Tien Shan.

34-3691
Mapping Alai Range glaciers from photographs taken by the *Soyuz-22* spaceship. [Primenenie snimkov s kosmicheskogo korablia "Soiuz-22" dlia kartografirovaniia oledeneniia Alaiskogo khrebta].
Kravtsova, V.I., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.37, p.56-62, In Russian with English summary. 6 refs.
Chalkina, N.F.
Aerial surveys, Spaceborne photography, Mountain glaciers, Spacecraft, Photointerpretation, Mapping.

34-3692
Depiction of glacier areas in the World Atlas of Snow and Ice Resources. [Ob izobrazhenii ploshchadei lednikov v Atlase snezhno-ledovykh resursov mira].
Timofeeva, N.A., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.37, p.62-66, In Russian with English summary. 4 refs.
Glaciers, Mapping, Alpine glaciation, Snow cover.

34-3693
Compiling 1:3 000 000 glacioclimatic maps for the World Atlas of Snow and Ice Resources. [Sostavlenie gliatsioklimaticheskikh kart masshtaba 1:3 000 000 dlia Atlasa snezhno-ledovykh resursov mira].
Davidovich, N.V., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.37, p.66-71, In Russian with English summary. 9 refs.
Tareeva, A.M.
Maps, Climatology, Glaciology, Mountain glaciers, Microclimatology, USSR—Caucasus.

34-3694
Calculating dates of stable snow in the Central Asian and Kazakhstan mountains from standard meteorological information. [Opyt rashcheta srokov zaleganiia ustoichivogo snezhnogo pokrova v gorakh Srednei Azii i Kazakhstana po standartnoi meteorologicheskoi informatsii].
Severskii, I.V., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.37, p.71-79, In Russian with English summary. 11 refs.
Pimankina, N.V.
Altitude, Snow accumulation, Snow melting, Mountain glaciers, Snow lines.

34-3695
Determining snow cover characteristics in unstudied areas. [Metodika opredeleniia kharakteristik snezhnogo pokrova dlia neizuchennykh territorii].
Getker, M.I., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.37, p.79-84, In Russian with English summary. 5 refs.
Glazyrin, G.E., Kadomtseva, T.G.
Snow surveys, Snow cover distribution, Snow depth, Snow water equivalent, Mapping.

34-3696
Comparative evaluation of indirect Computation methods of determining ratios of various precipitation types. [Sravnitel'naia otsenka metodov kosvennogo rascheta doli osadkov raznykh vidov v ikh obshchei summe].
Bogdanova, E.G., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.37, p.84-89, In Russian with English summary. 6 refs.
Glazyrin, G.E.
Precipitation (meteorology), Snowfall, Rain, Alpine glaciation, Alpine landscapes, Water balance.

34-3697
Duration and intensity of solid precipitation in North America (indirect calculations and mapping). [Prodolzhitel'nost' i intensivnost' tverdykh osadkov v Severnoi Amerike (opyt kosvennogo rascheta i kartirovaniia)].
Bogdanova, E.G., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.37, p.89-94, In Russian with English summary. 15 refs.
Struzer, L.R., Ashkinazi, T.V.
Precipitation (meteorology), Snowfall, Mapping.

34-3698
Combined method of calculating glacial runoff in mountains. [Kompleksnyi metod rascheta lednikovogo stoka gornykh oblastei].
Vladimirov, L.A., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.37, p.94-99, In Russian with English summary. 9 refs.
Glacial hydrology, Runoff, Mountain glaciers.

34-3699
Compiling map for developing recreation areas in mountains. [Opyt sostavleniia kart rekreatsionnogo osvoeniia gor].
Suprunenko, IU.P., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.37, p.99-107, In Russian with English summary. 23 refs.
Alpine landscapes, Mapping, Economic development.

34-3700
Collecting data for the World Atlas of Snow and Ice Resources in the USA and Canada. [Sbor materialov dlia Atlasa snezhno-ledovykh resursov mira v SShA i Kanade].
Dreier, N.N., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.37, p.107, In Russian.
Kotliakov, V.M.
International cooperation, Maps, Snow cover distribution, Glaciation, Mountain glaciers, Sea ice, Land ice, Aerial surveys.

34-3701
Radar sounding of Spitsbergen glaciers from helicopters. [Radiolokatsionnoe zondirovanie lednikov Shpitsbergena s vertoleta].
Macheret, IU.IA., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.37, p.109-131, In Russian with English summary. 24 refs.
Zhuravlev, A.B.
Mountain glaciers, Aerial surveys, Helicopters, Airborne radar, Radar echoes, Norway—Spitsbergen.

34-3702
Selective melting of lake ice. [IAvlenie izbiratel'nogo taianiia ozernogo l'da].
Zimov, S.A., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.37, p.121, In Russian.
Govorushko, S.M.
Polynyas, Ice melting, Thermokarst lakes, Lake ice, Ice cover thickness, Icebound lakes.

34-3703
Computerized solution of two-dimensional inverse problems of radar surveys of ice thickness and subglacial relief of mountain glaciers. [Reshenie dvumernoi obratnoi zadachi radiolokatsionnoi s"emki tolshchiny l'da i podlednogo rel'efa gornykh lednikov s pomoshch'iu EVM].
Berikashvili, V.Sh., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.37, p.131-139, In Russian with English summary. 7 refs.
Macheret, IU.IA.
Mountain glaciers, Ice cover thickness, Subglacial observations, Airborne radar, Radar echoes, Computer applications.

34-3704
Determining mountain glacier volumes from helicopter radar survey data. [Opredelenie ob"ema gornykh lednikov po dannym radiozondirovaniia s vertoleta].
Zhuravlev, A.B., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, 1979, Vol.37, p.140-148, In Russian with English summary. 31 refs.
Mountain glaciers, Ice volume, Ice cover thickness, Radar echoes, Airborne radar.

34-3705
Possibilities of linear models for calculating glacial runoff hydrographs. ⌈Vozmozhnosti lineinykh modelei dlia rascheta gidrografa lednikovogo stoka⌉.
Freidlin V.S., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia,* 1979, Vol.37, p.149-155, In Russian with English summary. 12 refs.
Glacial hydrology, Runoff, Mountain glaciers, Mathematical models.

34-3706
Snow density variations over ice covers. ⌈Izmenenie plotnosti snega na ledianom pokrove⌉.
Tsurikov, V.L., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia,* 1979, Vol.37, p.155-161, In Russian with English summary. 9 refs.
Sea ice, Ice cover thickness, Ice growth, Alimentation, Snow cover distribution.

34-3707
Possibility of indirect determination of solid precipitation intensity. ⌈O vozmozhnosti kosvennogo opredeleniia intensivnosti tverdykh osadkov⌉.
Bogdanova, E.G., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia,* 1979, Vol.37, p.161-165, In Russian with English summary. 8 refs.
Precipitation (meteorology), Snowfall, Mountains, Snow cover distribution, Meteorological data, Meteorological charts.

34-3708
Computing precipitation in mountains using precipitation gages. ⌈Ob uchete osadkov v gorakh s pomoshch'iu osadkomerov⌉.
Sudakov, P.A., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia,* 1979, Vol.37, p.166-172, In Russian with English summary. 5 refs.
Tokmagambetov, G.A., Fedulov, I.A.
Mountains, Precipitation (meteorology), Precipitation gages.

34-3709
Oxygen isotope studies of ice cores from the ice-divide of Grenfjord and Fritjof glaciers (West Spitsbergen Island). ⌈Izotopno-kislorodnye issledovaniia kerna s ledorazdela lednikov Grenf'ord i Frit'of (o. Zapadnyi Shpitsbergen)⌉.
Punning, IA.M.K., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia,* 1979, Vol.37, p.173-177, In Russian with English summary.
Vaikmiae, R.A., Kotliakov, V.M., Gordienko, F.G.
Ice cores, Isotope analysis, Oxygen isotopes, Snow cover structure, Norway—Spitsbergen.

34-3710
Areal distribution of snow reserves over the Polar Urals. ⌈O prostranstvennom raspredelenii snegozapasov na Poliarnom Urale⌉.
Gokhman, V.V., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia,* 1979, Vol.37, p.177-182, In Russian with English summary. 8 refs.
Zhidkov, V.A.
River basins, Snow cover distribution, Snow water equivalent, Snow surveys, Runoff, USSR—Ural Mountains.

34-3711
Heat balance of the Kozel'skiy glacier surface in Kamchatka Peninsula. ⌈Teplovoi balans poverkhnosti lednika Kozel'skogo na Kamchatke⌉.
Vinogradov, V.N., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia,* 1979, Vol.37, p.182-187, In Russian with English summary. 5 refs.
Mart'ianov, V.L.
Glacier surfaces, Heat balance, Glacier alimentation, Glacier ablation, Altitude, Air temperature, Wind factors.

34-3712
Using hydrochemical data from mountain-glacier basins in glaciological and hydrological computations. ⌈Primenenie dannykh gidrokhimicheskikh issledovanii v gorno-lednikovom basseine dlia gliatsiogidrologicheskikh raschetov⌉.
Zaslavskaia, M.B., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia,* 1979, Vol.37, p.187-192, In Russian with English summary. 4 refs.
Pylev, I.V.
River basins, Mountain glaciers, Glacial hydrology, Water chemistry, Meltwater.

34-3713
Calculating boundaries of avalanche danger zones of specified frequency from morphometry of avalanche foci. ⌈O raschete granits lavinoopasnykh zon zadannoi obespechennosti na osnove morfometrii lavinnykh ochagov⌉.
Zolotarev, E.A., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia,* 1979, Vol.37, p.193-198, In Russian with English summary. 13 refs.
Avalanche forecasting, Mapping, Avalanche formation, Snow cover distribution, Avalanche triggering, Avalanche mechanics.

34-3714
Drilling of the Antarctic Ice Sheet in the Novolazarevskaya Station area. ⌈Burenie Antarkticheskogo lednikovogo pokrova v raione stantsii Novolazarevskaia⌉.
Morev, V.A., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia,* 1979, Vol.37, p.198-200, In Russian with English summary.
Raikovskii, IU.V.
Ice sheets, Ice cores, Isotope analysis, Ice coring drills, Thermal drills, Antarctica—Novolazarevskaya Station.
Drilling through the Lazarev Shelf Glacier started in 1974 for studying temperature variations in boreholes and underlying water and obtaining sea water and bottom sediment samples. In 1977, the testing site for a new thermal drill was selected from radar sounding data. An area of about 1000 m ice thickness, located on the Antarctic Ice Sheet slope 40 km south of Novolazarevskaya Station, was chosen for drilling to the ice bottom, developing drilling technique, measuring ice temperature in marginal parts of the ice, and obtaining isotope analyses of ice cores. In 1978 the bottom was reached at 808 m, good core was obtained, and bottom temperature measured as -7.3C. Borehole inclinometric measurements showed ice velocity growing with depth to 600 m with subsequent decrease. The process and drilling technique are discussed.

34-3715
Annotated list of Soviet literature on glaciology for 1977. ⌈Annotirovannyi spisok Sovetskoi literatury po gliatsiologii za 1977 god⌉.
Kotliakov, V.M., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia,* 1979, Vol.37, p.201-285, In Russian. 717 refs.
Chernova, L.P.
Bibliographies, Glaciology.

34-3716
Role of stable isotopes in snow and ice studies. ⌈Rol' stabil'nykh izotopov v issledovaniiakh snega i l'da⌉.
Gordienko, F.G., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia,* 1979, Vol.37, p.286-295, In Russian. 24 refs.
Snow composition, Ice composition, Isotope analysis, Oxygen isotopes, Deuterium.

34-3717
Impact strength tests on Ottawa River ice.
Timco, G.W., et al, *National Research Council, Canada. Division of Mechanical Engineering. Laboratory technical report,* Apr. 1979, LTR-LT-97, 20p. + 15 figs., 2 refs.
Martin, R.A.
River ice, Impact strength, Ice strength, Hydraulic jets.

34-3718
Chemical survey to determine potential dopants for a model ice test basin.
Timco, G.W., *National Research Council, Canada. Division of Mechanical Engineering. Laboratory technical report,* Jan. 1979, LTR-LT-95, 22p., 8 refs.
Doped ice, Ice structure, Ice strength, Test chambers, Artificial ice, Water chemistry, Salinity.

34-3719
Multiple causes of the North American abnormal winter 1976-77.
Namias, J., *Monthly weather review,* Mar. 1978, 106(3), p.279-295, 30 refs.
Meteorological data, Snowstorms, Oceanography, Weather, Albedo, Long range forecasting.

34-3720
Icebergs and oil tankers soon to mix.
Hartline, B.K., *Science,* July 18, 1980, 209(4454), p.381.
Icebergs, Glacier flow, Calving, Ice navigation, Ice conditions, Tanker ships, United States—Alaska—Columbia Glacier.

34-3721
Influence of a phase transition of ice on the heat and mass balance of comets.
Klinger, J., *Science,* July 11, 1980, 209(4453), p.271-272, 15 refs.
Extraterrestrial ice, Heat balance, Mass balance, Phase transformations, Comets.

34-3722
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Glacial erosion, Ice sheets, Glacial geology, Paleoclimatology, Glaciation, Climatic changes.

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Trafficability, Snow accumulation, Cold weather operation, Snow removal, Road maintenance, Winter.

34-3724
Preliminary survey of the benthos of Resurrection Bay and Aialik Bay, Alaska.
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Marine biology, Benthos, Sediments.

34-3725
Ice forces on the Yukon River bridge—1978 breakup.
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McFadden, T.
Piers, Bridges, Ice loads, Ice pressure, Ice mechanics, Ice strength, Impact strength, Ice breakup, River ice.

34-3726
Helicopter icing spray system.
Belte, D., American Helicopter Society. Annual forum, 36th, Washington, D.C., May 1980, Washington, D.C., 1980, 13p., Preprint No.80-52. 8 refs.
Aircraft icing, Cloud chambers, Ice prevention, Helicopters, Humidity, Wind tunnels, Evaporation, Pressure.

34-3727
Physics and mechanics of ice.
Symposium on Physics and Mechanics of Ice, Cophenhagen, Aug. 6-10, 1979, Berlin, Springer-Verlag, 1980, 378p., Refs. passim. For individual papers see 34-3728 through 34-3752.
Tryde, P., ed.
Ice physics, Ice mechanics, Ice creep, Ice navigation, Ice conditions, Rheology, Ice pressure, Loads (forces), Meetings.

34-3728
Some promising trends in ice mechanics.
Assur, A., MP 1300, Symposium on Physics and Mechanics of Ice, Copenhagen, Aug. 6-10, 1979. Proceedings. Edited by P. Tryde, Berlin, Springer-Verlag, 1980, p.1-15, 12 refs.
Ice mechanics, Ice creep, Ice sheets, Stresses, Loads (forces), Ice models, Rheology, Ice cover thickness, Sea ice, Analysis (mathematics).
Ice sheets are inhomogeneous; properties vary strongly with depth. Theoretical treatment of plates with properties varying perpendicular to the plate has now been satisfactorily developed for floating ice sheets. However, other problems are still waiting for solutions. The use of model ice is developing rapidly. Some suggestions of how to analyze such ice are made. Breakthrough-loads on ice sheets diminish with duration of loading, but no satisfactory solution is available based upon classical procedures of applied mechanics.

34-3729
Development and application of multimodal ice failure theory.
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Ice mechanics, Ice structure, Ice strength, Ice pileup, Analysis (mathematics), Theories.

34-3730
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Ice mechanics, Viscous flow, Ice creep, Ice elasticity, Ice deformation, Stresses, Strains, Mathematical models, Computer applications, Rheology.

34-3731
Characteristics of iceberg mechanics.
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Icebergs, Drift, Dynamic properties, Offshore structures, Impact strength, Iceberg thawing, Ice mechanics.

34-3732
Constitutive relations for the non elastic deformation of polycrystalline ice.
Le Gac, H., et al, Symposium on Physics and Mechanics of Ice, Copenhagen, Aug. 6-10, 1979. Proceedings. Edited by P. Tryde, Berlin, Springer-Verlag, 1980, p.51-59, 15 refs.
Duval, P.
Ice crystals, Ice creep, Ice elasticity, Ice deformation, Mathematical models.

34-3733
Modelling the interaction between ice and ships.
Edwards, R.Y., Jr., Symposium on Physics and Mechanics of Ice, Copenhagen, Aug. 6-10, 1979. Proceedings. Edited by P. Tryde, Berlin, Springer-Verlag, 1980, p.60-81, 13 refs.
Ice loads, Icebreakers, Ice pressure, Ice strength, Ice friction, Metal ice friction, Flexural strength, Ships, Compressive properties, Elastic properties, Ice solid interface, Mathematical models.

34-3734
Finite element method simulation of large ice mass flow behaviour.
Emery, J.J., et al, Symposium on Physics and Mechanics of Ice, Copenhagen, Aug. 6-10, 1979. Proceedings. Edited by P. Tryde, Berlin, Springer-Verlag, 1980, p.82-92, 16 refs.
Mirza, F.A.
Ice creep, Ice mechanics, Ice physics, Glacier flow, Slope orientation.

34-3735
Experience gained by use of extensive ice laboratory facilities in solving ice problems.
Frankenstein, G.E., MP 1301, Symposium on Physics and Mechanics of Ice, Copenhagen, Aug. 6-10, 1979. Proceedings. Edited by P. Tryde, Berlin, Springer-Verlag, 1980, p.93-103, 12 refs.
Ice mechanics, Ice navigation, Ice conditions, Offshore structures, Ice loads, Floating ice, Icing, Ice pileup, Flooding, Laboratory techniques.
The discovery of offshore oil in ice-infested waters has caused major concern to the design engineers. Some of the problems associated with offshore structures are ice forces, icing, and pile-up. Laboratory facilities have and will continue to solve many of the ice problems. The ice problem at navigation locks, for example, has been solved primarily due to laboratory studies. Also, the results of ice forces due to ice uplift have been virtually eliminated by controlled studies. Laboratories are becoming larger and more sophisticated. This should result in an increase in laboratory studies and a decrease in field studies. Solutions will come faster because conditions can be precisely controlled.

34-3736
Dynamic ice forces on an inclined structure.
Frederking, R., Symposium on Physics and Mechanics of Ice, Copenhagen, Aug. 6-10, 1979. Proceedings. Edited by P. Tryde, Berlin, Springer-Verlag, 1980, p.104-116, 13 refs.
Floating ice, Ice cover strength, Ice mechanics, Ice breaking, Ice loads, Ice solid interface, Ice pressure, Hydraulic structures, Models.

34-3737
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Gold, L.W., et al, Symposium on Physics and Mechanics of Ice, Copenhagen, Aug. 6-10, 1979. Proceedings. Edited by P. Tryde, Berlin, Springer-Verlag, 1980, p.117-128, 12 refs.
Sinha, N.K.
Ice creep, Rheology, Ice mechanics, Ice deformation, Dynamic loads, Ice elasticity, Viscoelasticity, Strains, Stresses, Models.

34-3738
Critical stress intensity factors (K(Ic)) measurements at high loading rates for polycrystalline ice.
Goodman, D.J., Symposium on Physics and Mechanics of Ice, Copenhagen, Aug. 6-10, 1979. Proceedings. Edited by P. Tryde, Berlin, Springer-Verlag, 1980, p.129-1[illegible] refs.
Ice crystals, Stress concentration, Ice loads, Ice cracks, Ice strength, Temperature effects, Experimentation.

34-3739
Theory of floating ice sheets.
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Williams, F.M.
Floating ice, Ice mechanics, Ice temperature, Ice loads, Flexural strength, Theories, Ice sheets.

34-3740
On the buckling force of floating ice plates.
Kerr, A.D., Symposium on Physics and Mechanics of Ice, Copenhagen, Aug. 6-10, 1979. Proceedings. Edited by P. Tryde, Berlin, Springer-Verlag, 1980, p.163-178, 12 refs.
Ice loads, Floating ice, Ice pressure, Ice strength, Cohesion, Plates, Analysis (mathematics).

34-3741
Implications of structure width for design ice forces.
Kry, P.R., Symposium on Physics and Mechanics of Ice, Copenhagen, Aug. 6-10, 1979. Proceedings. Edited by P. Tryde, Berlin, Springer-Verlag, 1980, p.179-193, 11 refs.
Ice loads, Ice pressure, Ice mechanics, Artificial islands, Stresses, Ice cover thickness, Ice pileup, Ice solid interface.

34-3742
Danish icebreaker design.
Kure, K., et al, Symposium on Physics and Mechanics of Ice, Copenhagen, Aug. 6-10, 1979. Proceedings. Edited by P. Tryde, Berlin, Springer-Verlag, 1980, p.194-204, 4 refs.
Jacobsen, B.K.
Icebreakers, Ice strength, Ice friction, Design, Ice breaking.

34-3743
Creep and relaxation in floating platforms—an analysis of case histories.
Masterson, D.M., et al, Symposium on Physics and Mechanics of Ice, Copenhagen, Aug. 6-10, 1979. Proceedings. Edited by P. Tryde, Berlin, Springer-Verlag, 1980, p.205-216, 9 refs.
Strandberg, A.G.
Floating ice, Ice sheets, Floating structures, Ice loads, Ice creep, Flexural strength, Stresses, Offshore structures.

34-3744
Mechanical properties of polycrystalline ice.
Mellor, M., MP 1302, Symposium on Physics and Mechanics of Ice, Copenhagen, Aug. 6-10, 1979. Proceedings. Edited by P. Tryde, Berlin, Springer-Verlag, 1980, p.217-245.
Ice crystals, Ice mechanics, Ice elasticity, Ice creep, Ice strength, Ice cracks, Viscoelasticity, Stress strain diagrams, Brittleness, Temperature effects.

34-3745
Mechanical model of creep of polycrystalline ice with cracking activity.
Michel, B., Symposium on Physics and Mechanics of Ice, Copenhagen, Aug. 6-10, 1979. Proceedings. Edited by P. Tryde, Berlin, Springer-Verlag, 1980, p.246-264, 12 refs.
Ice crystals, Ice creep, Ice cracks, Ice deformation, Ice elasticity, Ice plasticity, Ice loads, Brittleness, Models.

34-3746
Application of fracture mechanics to ice problems.
Miller, K.J., Symposium on Physics and Mechanics of Ice, Copenhagen, Aug. 6-10, 1979. Proceedings. Edited by P. Tryde, Berlin, Springer-Verlag, 1980, p.265-277, 35 refs.
Ice mechanics, Ice cracks, Ice elasticity, Stress strain diagrams, Ice plasticity, Analysis (mathematics).

34-3747
Bending and buckling of a wedge on an elastic foundation.
Nevel, D.E., MP 1303, Symposium on Physics and Mechanics of Ice, Copenhagen, Aug. 6-10, 1979. Proceedings. Edited by P. Tryde, Berlin, Springer-Verlag, 1980, p.278-288, 5 refs.
Ice wedges, Foundations, Elastic properties, Ice cracks, Flexural strength, Loads (forces), Ice deformation, Analysis (mathematics).
When an ice sheet begins to slide up a sloping structure, the ice cracks radially form the structure creating wedges. Beam theory is used to analyze these wedges under the influence of both horizontal and vertical forces. Buckling and bending of these wedges are considered.

34-3748
Plastic limit analysis of sheet ice loads on conical structures.
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Ice sheets, Ice loads, Ice plasticity, Ice cracks, Ice pressure, Ice deformation, Flexural strength, Conical bodies, Offshore structures, Analysis (mathematics), Loads (forces).

34-3749
Flow of temperate ice in a vertical shaft with rough wall surfaces.
Reeh, N., Symposium on Physics and Mechanics of Ice, Copenhagen, Aug. 6-10, 1979. Proceedings. Edited by P. Tryde, Berlin, Springer-Verlag, 1980, p.309-324, 7 refs.
Ice creep, Ice mechanics, Ice physics, Ground ice, Ice deformation, Mine shafts, Walls, Stresses, Supports, Models.

34-3750
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34-3751
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Ozaki, A.
Ice pressure, Loads (forces), Piles, Offshore structures, Impact strength, Ice physics, Ice solid interface, Ice floes, Sea ice, Ice loads.

34-3752
Failure of sea ice by repeated compression.
Tabata, T., et al, Symposium on Physics and Mechanics of Ice, Copenhagen, Aug. 6-10, 1979. Proceedings. Edited by P. Tryde, Berlin, Springer-Verlag, 1980, p.351-362, 5 refs.
Nohguchi, Y.
Sea ice, Ice strength, Ice cracks, Compressive properties, Stress strain diagrams, Ice physics, Salinity, Temperature effects.

34-3753
Soil formation on dust loams in the taiga zone of northeastern European USSR. [Pochvoobrazovanie na pylevatykh suglinkakh v taezhnoĭ zone evropeĭskogo Severo-Vostoka],
Rusanova, G.V., et al, Leningrad, Nauka, 1978, 128p., In Russian with English table of contents enclosed. Refs. p.118-125.
Sokolova, T.A., Kuznetsova, E.G., Sloboda, A.V.
DLC S599.45.A1P5885
Taiga, Landscape types, Paludification, Soil formation, Cryogenic soils, Loams, Frozen fines, Soil profiles, Soil chemistry.

34-3754
Mountain forests. [Gornye lesa],
Sinitsyn, S.G., et al, Moscow, Lesnaia promyshlennost', 1979, 200p., In Russian with English table of contents enclosed. 132 refs.
DLC SD207.G67
Alpine landscapes, Forest land, Forest soils, Cryogenic soils, Slope processes, Rock streams, Landslides, Avalanches.

34-3755
Fresh ground water resources and water supply of the western section of the Baykal Amur railroad area. [Resursy presnykh podzemnykh vod i problema vodosnabzheniia zapadnogo uchastka BAMa],
Blokhin, IU.I., et al, Geologiia, geofizika i poleznye iskopaemye regiona Baĭkalo-Amurskoĭ zheleznodorozhnoĭ magistrali. Vyp.1 (Geology, geophysics and mineral resources of the Baykal Amur railroad area. Vol.1) edited by L.I. Krasnyĭ, Leningrad, 1977, p.127-134, In Russian.
Lisiĭ, V.A., Kurennoĭ, V.V., Shevchuk, N.P.
DLC QE315.G4287
Permafrost distribution, Permafrost hydrology, Water supply, Baykal Amur railroad.

34-3756
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Kalganov, V.F.
Clay soils, Bearing strength, Soil stabilization, Foundations, Electroosmosis, Frost penetration, Soil water migration, Frost heave.

34-3757
Cryogenic physical-geologic processes and their prediction. [Kriogennye fiziko-geologicheskie protsessy i ikh prognoz],
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Geocryology, Thermokarst, Ground ice, Ground thawing, Thermokarst lakes, Soil freezing, Frost penetration, Soil water migration, Frost heave.

34-3758
Land reclamation in winter. [Meliorativnye raboty zimoĭ],
Surikov, V.V., Moscow, Kolos, 1980, 270p., In Russian with English table of contents enclosed. Refs. p.265-268.
Land reclamation, Construction equipment, Drills, Earthwork, Excavation, Channels (waterways), Trenching, Frozen ground.

34-3759
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Panarin, I.I., Moscow, Nauka, 1979, 263p., In Russian with English table of contents enclosed. Refs. p.258-262.
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Alpine landscapes, Forest land, Taiga, Microclimatology, Cryogenic soils, Permafrost distribution, Permafrost hydrology, Baykal Amur railroad, USSR—Baykal Lake.

34-3760
Standardizing the requirements for frost resistance of asphalt-concretes. [Normirovat' trebovaniia k asfal'tobetonu po morozostoĭkosti],
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Shestakov, V.N.
Bituminous concretes, Frost resistance, Freeze thaw cycles, Roads, Pavements.

34-3761
New thermoplastic material for marking roads. [Novyĭ termoplastichnyĭ material dlia razmetki dorog],
Zadontsev, B.G., et al, *Avtomobil'nye dorogi*, Mar. 1980, No.3, p.19-20, In Russian.
Plastics, Pavements, Frost resistance, Roads, Markings, Paints.

34-3762
Construction of urban roads under northern conditions. [Stroitel'stvo gorodskikh dorog v usloviiakh Severa],
Galuzin, V.M., ed, Leningrad, Stroĭizdat, 1980, 134p., In Russian with English table of contents enclosed. 32 refs.
Urban planning, Roads, Roadbeds, Permafrost beneath structures, Earthwork, Drainage, Pavements, Winter maintenance.

34-3763
Seismic characteristics of loess in relation to geologic surroundings and the impact of industrial activities. [Seĭsmicheskie kharakteristiki lessovykh porod v sviazi s geologicheskim okruzheniem i tekhnogenezom],
Kriger, N.I., et al, Moscow, Nauka, 1980, 103p., In Russian with English table of contents enclosed. Refs. p.95-102.
Aleshin, A.S., Kozhevnikov, A.D., Mindel', I.G.
Loess, Earthquakes, Soil water, Thixotropy, Buildings, Foundations, Bearing strength, Settlement (structural), Human factors, Models.

34-3764
Study of the thermal structure of the antarctic ice cap.
Burdecki, F., *Notos*, 1967, 16(1/4), p.47-69, Refs. p.67-69.
Ice thermal properties, Ice sheets, Ice temperature, Heat sinks, Heat transfer.
An attempt is made to elaborate a model of the thermal structure of the antarctic cap (rock plus ice). The model is based on results of seismic investigations and charts of ice surface temperatures. Taking into consideration the terrestrial heat conduction, the improbability of an extremely low heat condition (negative stored heat) in Antarctica, and the present distribution of surface temperatures, a "key- temperature" of -10C at sea level at the South Pole is assumed. From temperature cross-sections along 40 meridians, with due consideration to the specific heat of rock and ice, a mean temperature of -24.6C for the whole antarctic cap was derived, that for West Antarctica being -17.7C and for East Antarctica -25.5C. It is found that if other factors which contribute to the growth or decrease of the antarctic ice are in exact equilibrium, an influx of terrestrial heat from below would need a minimum of 368,000 years to annihilate the antarctic ice mass. From a discussion of the thermodynamics of the growth and decay of the antarctic ice mass, it is inferred that in the present state the ice amount is not far from its physical maximum. Probably the ice cover of East Antarctica is shrinking slightly at present, whereas the west antarctic ice masses are growing in spite of some regional exceptions. (Auth. mod.)

34-3765
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Banks (waterways), Shore erosion, Landforms, River ice, Permafrost, Fast ice.

34-3766
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Ice sheets, Dynamic properties, Ice mechanics, Oscillations, Sea ice distribution, Climatic changes, Radiation balance, Glaciation, Mathematical models, Air water interactions, Ice water interface.

34-3768
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Forest land, Hydrology, Climatology, Forest soils, Water erosion, Protective vegetation, Litter, Forest canopy, Snow cover distribution, Environmental protection, Rivers, Thermal regime, Ice conditions, Drainage.

34-3769
Thermal regime of rivers in Central and West Siberian plains. [Osobennosti termicheskogo rezhima rek ravninnykh landshaftov Sredneĭ i Zapadnoĭ Sibiri],
Protopopov, V.V., et al, Gidro-klimaticheskoe vliianie lesa (Hydroclimatic influence of forests) edited by V.V. Protopopov, Novosibirsk, Nauka, 1979, p.4-24, In Russian. 17 refs.
Ziubina, V.I.
Plains, Swamps, Taiga, Rivers, Permafrost beneath rivers, Thermal regime, Ice conditions.

34-3770
Forest and hydrological regionalization of Central Siberia. [Lesogidrologicheskoe raĭonirovanie Sredneĭ Sibiri],
Lebedev, A.V., Gidro-klimaticheskoe vliianie lesa (Hydroclimatic influence of forests) edited by V.V. Protopopov, Novosibirsk, Nauka, 1979, p.25-58, In Russian. 21 refs.
Forest land, Classifications, Mapping, Taiga, Cryogenic soils, Evaporation, Forest canopy, Soil erosion, Snow cover distribution, Snow water equivalent.

34-3771
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Taiga, Landscape types, Cryogenic soils, Soil erosion, Litter, Mosses.

34-3772
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Taiga, Permafrost distribution, Slope orientation, Snow cover distribution, Soil temperature, Snowmelt, USSR—Khamar Daban Range.

34-3773
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Taiga, Cryogenic soils, Water erosion, Slope stability, Protective vegetation.

34-3774
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Uskova, L.M.
River basins, Water balance, Permafrost distribution, Permafrost hydrology, Icebound rivers, USSR—Baykal Lake.

34-3775
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Mountains, Taiga, Plant ecology, Plant physiology, Water supply, Transpiration.

34-3776
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Buzunov, Z.T., Vysokokachestvennoe soderzhanie zheleznodorozhnogo puti (Highly efficient maintenance of railroad tracks) edited by I.T. Sharbatov, Moscow, Transport, 1979, p.50-62, In Russian.
Railroads, Permafrost beneath structures, Railroad tracks, Damage, Maintenance.

34-3777
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Clay soils, Porosity, Ice formation, Soil chemistry, Soil water, Soil freezing.

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Snow cover distribution, Runoff, Snowmelt, Remote sensing, LANDSAT, Seasonal variations, Models.

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Aerosols, Distribution, Ice nuclei, Freezing, Temperature effects.

34-3780
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High pressure ice, Ice physics, Stresses, Ice density, Ice crystal structure, Wave propagation.

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34-3782
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Ice physics, Ice crystals, Proton transport, Ice spectroscopy, Infrared spectroscopy, Ions, Defects, Migration, Heavy water.

34-3783
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Glacier mass balance, Calving, Forecasting, Glacier flow, Ice deterioration, Dynamic properties, Bathymetry, Mathematical models, United States—Alaska—Columbia Glacier.

34-3784
Equilibrium profile of ice shelves.
Sanderson, T.J.O., *Journal of glaciology*, 1979, 22(88), p.435-460, 28 refs., In English with French and German summaries.
Ice shelves, Profiles, Glacier flow, Glacier thickness, Glacier tongues, Velocity, Models, Ice cover thickness, Antarctica—Erebus Glacier.
Using expressions for ice-shelf creep derived by Weertman and Thomas, a general method is developed for calculating equilibrium thickness profiles, velocities, and strain-rates for any ice shelf. This is done first for an unconfined glacier tongue, and the result agrees well with data for Erebus Glacier tongue (Holdsworth, 1974). Anomalies occur within the first 3 km after the hinge zone, and these are too great to be the result of local bottom freezing; they are probably due to disturbance of the velocity field. Secondly, profiles are calculated for bay ice shelves. Thickness gradients are largely independent of melt-rate or flow parameters but are inversely proportional to the width of the bay. Data from antarctic ice shelves agree with this result both qualitatively and quantitatively. The theory is readily extended to ice shelves in diverging and converging bays. An ice shelf in a diverging bay can only remain intact if it is thick enough and slow enough to creep sufficiently rapidly in the transverse direction. If it cannot, it will develop major rifts or will come adrift from the bay walls. It is then likely to break up. The presence of ice rises or areas of grounding towards the seaward margin can radically alter the size of the ice shelf which can form. The theory could be used as a starting point to study non-equilibrium behaviour. (Auth.)

34-3785
Analysis of the *In-situ* resistivity of sea ice in terms of its microstructure.
Timco, G.W., *Journal of glaciology*, 1979, 22(88), p.461-471, 24 refs., In English with French and German summaries.
Sea ice, Electrical resistivity, Ice strength, Microstructure, Sounding, Brines, Geoelectricity, Ice salinity, Ice temperature.

34-3786
Field study of brine drainage and oil entrainment in first-year sea ice.
Martin, S., *Journal of glaciology*, 1979, 22(88), p.473-502, 13 refs., In English with French and German summaries.
Sea ice, Ice growth, Brines, Oil spills, Surface drainage, Liquid solid interfaces, Ice surface, Ice melting, Ice pollution, Temperature effects, Ice cores.

34-3787
Evaluation of jet-roof geometry for snow-cornice control.
Dawson, K.L., et al, *Journal of glaciology*, 1979, 22(88), p.503-511, 9 refs., In English with French and German summaries.
Lang, T.E.
Roofs, Snow cornices, Snow accumulation, Slope orientation, Air flow, Computerized simulation.

34-3788
Time-series modelling of avalanche activity from meteorological data.
Salway, A.A., *Journal of glaciology*, 1979, 22(88), p.513-528, 18 refs., In English with French and German summaries.
Avalanche formation, Avalanche forecasting, Meteorological data, Models, Avalanche mechanics.

34-3789
Forces on structures impacted and enveloped by avalanches.
Pedersen, R.R., et al, *Journal of glaciology*, 1979, 22(88), p.529-534, 4 refs., In English with French and German summaries.
Lang, T.E.
Impact strength, Avalanche mechanics, Structures, Snow loads, Velocity, Pressure, Stresses, Models, Avalanche deposits.

34-3790
Saw-tooth moraines in front of Bödalsbreen, southern Norway.
Matthews, J.A., et al, *Journal of glaciology*, 1979, 22(88), p.535-546, 39 refs., In English with French and German summaries.
Cornish, R., Shakesby, R.A.
Moraines, Glacial deposits, Norway—Bödalsbre Glacier.

34-3791
Recommendation for the application of the Roche index for slab avalanche release.
Sommerfeld, R.A., et al, *Journal of glaciology*, 1979, 22(88), p.547-549, 7 refs., In English with French and German summaries.
King, R.M.
Avalanche mechanics, Shear strength, Snow slides, Statistical analysis, Indexes (ratios), Snow strength, Stresses.

34-3792
Performance of V.H.F. aerials close to a snow surface.
Doake, C.S.M., et al, *Journal of glaciology*, 1979, 22(88), p.551-553, 3 refs., In English with French and German summaries.
Gorman, M.
Aerial surveys, Snow surface temperature, Air temperature, Sounding.

34-3793
The iceberg cometh.
Weeks, W.F., et al, *Technology review*, Aug.-Sep 1979, 81(8), MP 1305, p.66-75, 6 refs.
Mellor, M.
Iceberg towing.
The potential of towing icebergs to arid regions in the Southern Hemisphere is reviewed. Formidable technical problems exist, some proposed solutions are listed. However, very little has been done to test the technology proposed. Towing, insulation, routes, and other aspects of iceberg-towing technology should be investigated by a trial tow to Western Australia, the area most favorably located for southern iceberg delivery.

34-3794
Two models for estimating climate-glacier relationships in the North Cascades, Washington, U.S.A.
Tangborn, W., *Journal of glaciology*, 1980, 25(91), p.3-21, Refs. p.19-21., In English with French and German summaries.
Models, Glacier mass balance, Glacial meteorology, Climatic factors, Precipitation (meteorology), Air temperature, Runoff.

34-3795
Airborne UHF radio echo-sounding of three Yukon glaciers.
Narod, B.B., et al, *Journal of glaciology*, 1980, 25(91), p.23-31, 10 refs., In English with French and German summaries.
Clarke, G.K.C.
Glacier thickness, Radio echo soundings, Airborne equipment, Profiles, Glacier surveys, Mapping.

34-3796
Morphology and dynamics of ice rises.
Martin, P.J., et al, *Journal of glaciology*, 1980, 25(91), p.33-45, 27 refs., In English with French and German summaries.
Sanderson, T.J.O.
Ice mechanics, Ice creep, Ice deformation, Compressive properties, Ice physics, Ice shelves, Profiles, Ice heat flux, Ice cover thickness, Antarctica—Antarctic Peninsula.
Profile surveys are presented of four ice rises on the east coast of the Antarctic Peninsula. On Butler Island velocity measurements were also made. The ice rises behave as miniature ice caps frozen to flat horizontal bedrock and provide a simple system for the study of law of ice flow. Deformation is principally by shear through the ice mass. Each ice rise is bounded on one side by ice shelf and on the other side by open sea. Towards open sea the profiles are found to agree well with steady-state theoretical profiles. Towards ice shelf the profiles are elongated, and they deviate from the theoretical profile. This may be due to compressive stress in the ice shelf, causing migration of the grounding line down sloping bedrock. No significantly anomalous behaviour is found in the summit region. (Auth. mod.)

34-3797
Creep of ice, geothermal heat flow, and Roosevelt Island, Antarctica.
Thomas, R.H., et al, *Journal of glaciology*, 1980, 25(91), p.47-60, 33 refs., In English with French and German summaries.
MacAyeal, D.R., Bentley, C.R., Clapp, J.L.
Ice creep, Ice mechanics, Geothermy, Heat transfer, Velocity, Recrystallization.
Measurements of ice velocity, thickness, and surface topography on the large ice rise known as Roosevelt Island are consistent with Glen's flow law. Assuming that near the center of the ice rise, where the effects of recrystallization are probably negligible, the ice behaves in the same way as randomly-oriented polycrystalline ice, then the geothermal flux G in this area is approximately 0.06 W/sq m. In the absence of measurements of deep-ice temperatures, the distribution of G across the ice rise cannot be determined. However, the simplest interpretation of the movement data requires (1) a linear increase in G from 0.05 W/sq m on the north-east side of Roosevelt Island to 0.07 W/sq m in the south-west, and (2) strain-rate enhancement, due to recrystallization, that increases outward from the center of the ice rise to reach a maximum value of approximately two near the edges. The calculated values of G are larger than the world average, but this is consistent with the probably granitic core beneath Roosevelt Island. An increase in G of 0.02 W/sq m in a distance of 600 km would require an increase in granite thickness of about 5 km. (Auth. mod.)

34-3798
Thermohydrodynamic model of an ice sheet.
Verbitskii, M.IA., et al, *Journal of glaciology*, 1980, 25(91), p.61-67, 5 refs., In English with French and German summaries.
Chalikov, D.V.
Thermodynamic properties, Hydrodynamics, Glacier flow, Thermal conductivity, Ice sheets, Ice surface, Ice temperature, Ice temperature, Velocity, Mathematical models.
The purpose of this paper is to consider an ice-sheet model based on joint solution to the dynamic equations and equations of heat conductivity in which the surface relief is one of the unknown functions. The proposed model is applicable to calculation of the antarctic ice sheet. Results of a numerical experiment for present values of the temperature of the ice surface and precipitation, as well as for their separate and simultaneous increase by 2, 4, or 6 deg and 10, 20 or 30%, are given. (Auth.)

34-3799
Glaciological investigations of the tropical Quelccaya ice cap, Peru.
Thompson, L.G., *Journal of glaciology*, 1980, 25(91), p.69-84, 13 refs., In English with French and German summaries.
Mountain glaciers, Glaciology, Snow stratigraphy, Glacier surveys, Glacial meteorology, Particles, Ice cores, Seasonal variations, Snow temperature, Paleoclimatology, Air temperature.

34-3800
Microwave brightness of polar firn as measured by Nimbus 5 and 6 ESMR.
Chang, A.T.C., et al, *Journal of glaciology*, 1980, 25(91), p.85-91, 19 refs., In English with French and German summaries.
Choudhury, B.J., Gloersen, P.
Microwaves, Firn, Brightness, Snow optics, Remote sensing, Temperature effects.

The microwave emission from a half-space medium, characterized by coordinate dependent scattering and absorbing centers, has been calculated by numerically solving the radiative transfer equation by the method of invariant imbedding. A Mie scattering phase function and surface polarization have been included in the calculation. Also included are the physical temperature profile and the temperature variation of the index of refraction for ice. Using published values of grain-size and temperature profile and the temperature variation of the index of refraction for ice. Using published values of grain-size and temperature-profile data of polar firn, the brightness temperature has been calculated for the 1.55 cm and 0.8 cm wavelengths. For selected regions in Greenland and Antarctica, the results of our calculations are in reasonable agreement with the observed Nimbus-5 and Nimbus-6 EMSR data. (Auth.)

34-3801
Pendular-funicular liquid transition in snow.
Denoth, A., *Journal of glaciology*, 1980, 25(91), p.93-97, 7 refs., In English with French and German summaries.
Snow permeability, Dielectric properties, Liquid solid interfaces, Porosity, Snow water content, Drainage, Water flow.

34-3802
Pressure waves in snow.
Brown, R.L., *Journal of glaciology*, 1980, 25(91), MP 1306, p.99-107, 9 refs., In English with French and German summaries.
Shock waves, Snow density, Loads (forces), Snow strength, Shear stress, Snow compression, Analysis (mathematics).
A dynamic constitutive law is used to study the response of medium-density snow to shock waves. The results show good correlation between theory and experiment, except for low-intensity shocks which produce small permanent density changes. In this case the validity of the data is questioned, although further experimental work is needed to settle this question. The results of this work also partially explain why snow is so effective in absorbing energy associated with stress waves. This is felt to be due to the work-hardening characteristics of snow.

34-3803
Nivation: an arctic-alpine comparison and reappraisal.
Thorn, C.E., et al, *Journal of glaciology*, 1980, 25(91), p.109-124, 40 refs., In English with French and German summaries.
Hall, K.
Nivation, Snow cover distribution, Geomorphology, Freeze thaw cycles, Weathering, Solifluction, Polar regions, Alpine glaciation.

34-3804
Scanning electron microscope examination of subglacial quartz grains from Camp Century core, Greenland—a preliminary study.
Whalley, W.B., et al, *Journal of glaciology*, 1980, 25(91), p.125-131, 13 refs., In English with French and German summaries.
Langway, C.C., Jr.
Subglacial observations, Glacier beds, Scanning electron microscopy, Glacial deposits, Eolian soils, Sands, Geomorphology.

34-3805
Dynamic behaviour of dislocations in HF-doped ice Ih.
Perez, J., et al, *Journal of glaciology*, 1980, 25(91), p.133-149, 16 refs., In English with French and German summaries.
Maï, C., Tatibouët, J., Vassoille, R.
Doped ice, Ice mechanics, Ice crystal structure, Internal friction, Temperature effects, Velocity, Mathematical models.

34-3806
Does the permanent creep-rate of polycrystalline ice increase with crystal size.
Duval, P., et al, *Journal of glaciology*, 1980, 25(91), p.151-157, 15 refs., In English with French and German summaries.
Le Gac, H.
Ice creep, Ice crystal size, Grain size, Rheology, Ice mechanics, Temperature effects, Stresses, Strains, Compressive properties.

34-3807
Elastic constants of ice by Brillouin spectroscopy.
Gammon, P.H., et al, *Journal of glaciology*, 1980, 25(91), p.159-167, 28 refs., In English with French and German summaries.
Kiefte, H., Clouter, M.J.
Ice elasticity, Ice spectroscopy, Ice crystal structure, Rheology.

34-3808
Fast light-weight core drill.
Johnsen, S.J., et al, *Journal of glaciology*, 1980, 25(91), p.169-174, 4 refs., In English with French and German summaries.
Ice coring drills, Equipment.

34-3809
Field techniques for experimental stress analysis in Arctic sea ice.
Cochran, G.V.B., *Journal of glaciology*, 1980, 25(91), p.175-182, 18 refs., In English with French and German summaries.
Sea ice, Glacier ice, Stresses, Shear strain, Electrical resistivity, Compressive properties, Temperature effects.

34-3810
Existence of multiple steady states in the flow of large ice masses.
Fowler, A.C., *Journal of glaciology*, 1980, 25(91), p.183-184, 3 refs., In English with French and German summaries.
Ice mechanics, Ice sheets, Glacier flow, Ice thermal properties.

34-3811
Bottom crevasses.
Weertman, J., *Journal of glaciology*, 1980, 25(91), p.185-188, 10 refs., In English with French and German summaries.
Ice shelves, Iceberg towing, Crevasses, Freezing, Floating ice, Ice temperature, Theories.
An approximate calculation is made of the rate which a bottom crevasse in a cold ice shelf or tabular iceberg can close shut by freezing of water and can creep open through the creep deformation of ice. In all but the thickest ice shelves and icebergs, those with a thickness greater than about 400 m, the freezing process is the more important mechanism if the ice is cold (<-10C). Consequently, in a cold iceberg or ice shelf, a bottom crevasse, once formed, will freeze shut. Results of the calculation are applicable to the computation of the expected disintegration of towed icebergs. (Auth. mod.)

34-3812
Regimes of landscape-geochemical processes in geosystems. [Rezhimy landshaftno-geokhimicheskikh protsessov v geosistemakh],
Snytko, V.A., ed, Irkutsk, 1977, 120p., In Russian. For selected papers see 34-3813 through 34-3816. Refs. passim.
Kochurov, B.I., ed, Nechaeva, E.G., ed.
DLC GB405.R48
Taiga, Soil composition, Soil formation, Swamps, Soil chemistry, Cryogenic soils, Soil water, Snow cover effect, Topographic factors.

34-3813
Metabolism of organic matter in south taiga soils of East Siberia. [Metabolizm organicheskogo veshchestva v pochvakh iuzhnoĭ taĭgi Zapadnoĭ Sibiri],
Nechaeva, E.G., et al, Rezhimy landshaftno-geokhimicheskikh protsessov v geosistemakh (Regimes of landscape-geochemical processes in geosystems) edited by V.A. Snytko, B.I. Kochurov and E.G. Nechaeva, Irkutsk, 1977, p.9-24, In Russian. 28 refs.
Davydova, N.D.
DLC GB405.R48
Taiga, Soil composition, Soil profiles, Soil formation.

34-3814
Dynamics of soil-geochemical indices in taiga permafrost geosystems. [Dinamika pochvenno-geokhimicheskikh pokazateleĭ v merzlotno-taezhnykh geosistemakh],
Shchetnikov, A.I., Rezhimy landshaftno-geokhimicheskikh protsessov v geosistemakh (Regimes of landscape-geochemical processes in geosystems) edited by V.A. Snytko, B.I. Kochurov and E.G. Nechaeva, Irkutsk, 1977, p.43-58, In Russian. 12 refs.
DLC GB405.R48
Taiga, Landscape types, Mountains, Cryogenic soils, Soil composition, Soil chemistry.

34-3815
Geochemical structure of West Sayan foothill geosystems. [Geokhimicheskaia struktura predgornykh geosistem Zapadnogo Saiana],
Kochurov, B.I., et al, Rezhimy landshaftno-geokhimicheskikh protsessov v geosistemakh (Regimes of landscape-geochemical processes in geosystems) edited by V.A. Snytko, B.I. Kochurov and E.G. Nechaeva, Irkutsk, 1977, p.59-72, In Russian. 10 refs.
Grechushkina, L.I.
DLC GB405.R48
Mountain soils, Snow cover distribution, Snow depth, Snow water equivalent, Soil water, Vegetation, Chemical composition.

34-3816
Dynamics of soil and geochemical indices in central taiga geosystems. [Dinamika pochvenno-geokhimicheskikh pokazateleĭ srednetaezhnykh geosistem],
Sazonov, A.G., Rezhimy landshaftno-geokhimicheskikh protsessov v geosistemakh (Regimes of landscape-geochemical processes in geosystems) edited by V.A. Snytko, B.I. Kochurov and E.G. Nechaeva, Irkutsk, 1977, p.73-84, In Russian. 4 refs.
DLC GB405.R48
Taiga, Landscape types, Paludification, Soil formation, Cryogenic soils, Sporadic permafrost, Soil water, Soil chemistry, Topographic effects.

34-3817
Residential complexes for oil and gas field workers in West Siberia. [Vakhtennye zhilye kompleksy dlia stroitelei neftianykh i gazovykh mestorozhdenii Zapadnoĭ Sibiri],
Kravets, V.A., *Stroitel'stvo i arkhitektura*, 1979, Vol.15, p.52-58, In Russian.
Petroleum industry, Residential buildings, Permafrost beneath structures, Design.

34-3818
Improving work organization and quality control at a most important construction site. [Sovershenstvovanie organizatsii rabot i kontrolia kachestva na vazhneĭshei stroike],
Pelevin, I.V., *Stroitel'stvo truboprovodov*, May 1980, No.5, p.20-21, In Russian.
Gas pipelines, Permafrost hydrology, Permafrost beneath structures, Underground pipelines, Swamps, Pipe laying, Welding, Earthwork, Quicksand.

34-3819
Development of a specialized production base in West Siberia. [Zadachi razvitiia otraslevoĭ proizvodstvennoĭ bazy v Zapadnoĭ Sibiri],
Gorlashkina, G.A., et al, *Stroitel'stvo truboprovodov*, May 1980, No.5, p.21-22, In Russian.
Stoianov, A.I.
Petroleum industry, Construction materials, Construction equipment, Storage, Logistics, Permafrost beneath structures.

34-3820
Pipeline for container transport of viscous oils and petroleum products. [Truboprovodnyĭ konteĭnernyĭ transport viazkikh nefteĭ i nefteproduktov],
Ibragimov, D.B., et al, *Stroitel'stvo truboprovodov*, May 1980, No.5, p.26-29, In Russian.
Petroleum transportation, Hot oil lines, Permafrost beneath structures, Pipelines, Container transportation.

34-3821
Eliminating breakdowns during the testing of the Surgut-Polotsk oil pipeline. [Likvidatsiia otkazov pri ispytanii uchastka nefteprovoda Surgut-Polotsk],
Riabov, G.N., *Stroitel'stvo truboprovodov*, May 1980, No.5, p.32-33, In Russian.
Petroleum transportation, Pipelines, Swamps, Permafrost beneath structures, Maintenance.

34-3822
Modernized welding assembly PAU1001V for field work. [Modernizirovannaia polevaia avtosvarochnaia ustanovka PAU1001V],
Borutskiĭ, A.I., et al, *Stroitel'stvo truboprovodov*, May 1980, No.5, p.36-37, In Russian.
Gol'dfain, A.E., Krikun, A.I.
Petroleum transportation, Pipelines, Welding, Cold weather construction.

34-3823
Improving the design of structures built in complex ground conditions. [Sovershenstvovanie rascheta sooruzhenii vozvodimykh v slozhnykh gruntovykh usloviiakh],
Meteliuk, N.S., Kiev, Budivel'nik, 1980, 143p., In Russian with English table of contents enclosed. 30 refs.
Concrete structures, Foundations, Residential buildings, Industrial buildings, Reinforced concretes, Clay soils, Rheology, Bearing strength, Creep, Deformation, Karst.

34-3824
Dehydration of nonmetalliferous construction materials at low temperatures. [Obezvozhivanie nerudnykh stroitel'nykh materialov pri nizkikh temperaturakh],
Gurevich, V.G., et al, Leningrad, Stroiizdat, 1980, 70p., In Russian with English table of contents enclosed. 14 refs.
Atlasov, V.G., Abramson, V.Sh.
Construction materials, Sands, Gravel, Frozen cargo, Storage, Drying, Vacuum freezing, Equipment.

34-3825
Passenger transportation in Urban planning of the North. [Passazhirskii transport v gradostroitel'stve Severa].
Belinskii, A.IU., et al, Leningrad, Stroiizdat, 1980, 146p., In Russian with English table of contents enclosed. 34 refs.
Furen, V.M.
Urban planning, Transportation, Economic analysis, Models.

34-3826
Technology and equipment for building pile foundations on permafrost. [Tekhnologiia i mekhanizatsiia rabot po stroitel'stvu svainykh fundamentov na vechnomerzlykh gruntakh].
Rastegaev, I.K., Leningrad, Stroiizdat, 1980, 128p., In Russian with English table of contents enclosed. 26 refs.
Foundations, Permafrost beneath structures, Concrete piles, Pile driving, Pile extraction, Pile load tests.

34-3827
English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1.
International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, Ottawa, Canada, National Research Council, Mar. 1980, 399p., Refs. passim. For individual papers see 34-3828 through 34-3853 For Part 2 see 34-3232 through 34-3259.
Geocryology, Permafrost physics, Permafrost origin, Permafrost hydrology, Frost penetration, Subsea permafrost, Ground ice, Permafrost structure, Permafrost distribution.

34-3828
Reconstruction of paleoclimate from present day geothermal data.
Balobaev, V.T., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.1-12, 4 refs. For Russian original see 32-3664.
Paleoclimatology, Permafrost thickness, Active layer, Permafrost thermal properties.

34-3829
Classification of the relationship between climate and permafrost-climatic regions.
Gavrilova, M.K., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.13-27, For Russian original see 32-3666.
Climatology, Permafrost origin, Geocryology, Microclimatology, Classifications.

34-3830
Effect of developing a territory on the heat balance and the thermal and moisture regime of the ground in the northern part of Western Siberia.
Moskalenko, N.G., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.29-44, 8 refs. For Russian original see 32-3671.
Slavin-Borovskii, V.B., Shur, IU.L., Lazareva, N.A., Malevskii-Malevich, S.P.
Permafrost thermal properties, Active layer, Surface temperature, Heat balance, Taiga, Forest tundra, Human factors.

34-3831
Thermal physics of permafrost terrain.
Pavlov, A.V., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.46-61, 12 refs. For Russian original see 32-3673.
Cryogenic soils, Soil temperature, Vegetation factors, Heat transfer, Permafrost thermal properties.

34-3832
Geophysical aspects of the development of permafrost.
Kudriavtsev, V.A., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar 1980, p.63-79, 29 refs. For Russian original see 32-3677
Melamed, V.G.
Permafrost origin, Frost penetration, Heat transfer, Mass transfer, Active layer, Surface temperature, Radiation balance, Permafrost heat balance, Stefan problem.

34-3833
An NMR study of the phase transition of water in models and in frozen clays.
Kvlividze, V.I., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar 1980, p.81-96, 36 refs. For Russian original see 32-3679.
Kiselev, V.F., Krasnushkin, A.V., Kurzaev, A.B., Ushakova, L.A.
Frozen fines, Clays, Mass transfer, Phase transformations, Ground ice, Nuclear magnetic resonance.

34-3834
Investigation of the structure and properties of bound water.
Savel'ev, B.A., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.97-107, 11 refs. For Russian original see 32-3682.
Frozen ground, Ground ice, Hygroscopic water, Soil strength, Deformation.

34-3835
Conditions and geothermal consequences of the moisture exchange between the lithosphere and the atmosphere in permafrost regions.
Shvetsov, P.F., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.109-117, 17 refs. For Russian original see 32-3684.
Permafrost hydrology, Air temperature, Surface temperature, Heat transfer, Mass transfer, Frozen fines.

34-3836
Results of experimental studies of the freezing process in very fine-grained soils.
Zhestkova, T.N., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.119-136, 10 refs. For Russian original see 32-3686.
Frozen fines, Frost penetration, Soil water migration, Ground ice, Cryogenic structures, Ice structure.

34-3837
Role of highly mineralized groundwater in the cooling of the lithosphere at depth.
Chizhov, A.B., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.137-142, 9 refs. For Russian original see 32-3687.
Permafrost hydrology, Ground water, Frozen rock temperature.

34-3838
Experimental investigation of heat and moisture transfer during sublimation-desublimation of water in fine-grained soils.
Ershov, E.D., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.143-158, 8 refs. For Russian original see 32-3688.
Gurov, V.V., Komarov, I.A., Kuchukov, E.Z.
Frozen fines, Ground ice, Ice sublimation, Heat transfer, Mass transfer.

34-3839
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Ershov, E.D., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.159-175, 11 refs. For Russian original see 32-3689.
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34-3893
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Building codes, Standards, Structures, Cold weather construction, Ice loads, Snow loads, Wind pressure, Loads (forces), Bearing strength, Temperature effects, Design.

34-3898
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Ice surveys, Ice reporting, Ice conditions, Side looking radar, Drift, Ice edge, Airborne radar, Ice navigation.
The "Toros" device makes possible the mapping of the ice sheet of extensive areas of the sea at any time of year, regardless of meteorological or lighting conditions. The enumerated data, provided by the "Toros" peripheral scanning radar station, indicate the multitudinous possibilities of applying this data in the solution of problems of various types. With the help of this system, an experiment was conducted in the southeastern part of the Barents Sea in Apr. 1974, which was directed towards the solution of the problem of short-term forecasting of the location of the ice in a given area.

34-3899
Icebergs: technology for the future.
Huppert, H.E., *Nature*, May 8, 1980, 285(5760), p.67-68.
Meetings, Icebergs.
The author reports on the Conference on the Use of Icebergs held in April 1980 at SPRI in Cambridge. The conference was devoted mainly to discussions on the physical characteristics of icebergs, including the way they break and roll over, their melt rate, and the feasibility of towing them across oceans for use in arid regions. Several of the papers dealing with these aspects are reviewed.

34-3900
Cargo to the north by transport planes. [Gruzy na Sever—vozdushnym transportom].
Chudnovskiĭ, A., *Neftianik*, 1978, No.5, p.8-10, In Russian.
Petroleum industry, Logistics, Transportation, Airplanes, Cost analysis.

34-3901
Transport planes in the economic development of northern USA and Canada. [Transportnaia aviatsiia na osvoenii Severa SShA i Kanady].
Chudnovskiĭ, A., *Neftianik*, 1978, No.10, p.44-47, In Russian.
Economic development, Construction, Transportation, Airplanes.

34-3902
Chemical composition of snow and ice of the highest Pamir glaciers. [O khimicheskom sostave snega i l'da vysochaishikh lednikov Pamira].
Diurgerov, M.B., et al, *Moscow. Universitet. Vestnik. Seriia 5 Geografiia*, Mar.-Apr. 1980, No.2, p.67-71, In Russian with English summary. 7 refs.
Evseev, A.V., Sukhova, T.G.
Glacier ice, Snow cover distribution, Ice composition, Snow composition, Admixtures, USSR—Pamirs.

34-3903
Rock glaciers in Dagestan mountains (East Caucasus). [Kamennye gletchery gornogo Dagestana (Vostochnyĭ Kavkaz)].
Kozhevnikov, A.V., et al, *Moscow. Universitet. Vestnik. Seriia 4 Geologiia*, Mar.-Apr. 1980, No.2, p.14-26, In Russian. 17 refs.
Nikitin, M.IU., Lian, R.N.
Slope processes, Rock glaciers, Ice sheets, Ice composition, Dating, Classifications, USSR—Caucasus.

34-3904
Computer application to geocryological-engineering-geological mapping. [K metodike primeneniia EVM pri merzlotno-inzhenerno-geologicheskom kartirovanii].
Kozlov, A.N., et al, *Moscow. Universitet. Vestnik. Seriia 4 Geologiia*, Mar.-Apr. 1980, No.2, p.61-65, In Russian. 6 refs.
Medvedev, A.V., Melent'ev, V.S., Chizhov, A.B.
Maps, Geocryology, Engineering geology, Mapping, Computer applications.

34-3905
Determining passability of walking excavators in inhomogeneous grounds, allowing for frozen layers. [Metod opredeleniia prokhodimosti shagaiushchego ekskavatora po neodnorodnomu massivu s uchetom merzlogo sloia].
Zagorulko, L.P., *Moscow. Institut gornogo dela Nauchnye soobshcheniia*, 1978, Vol.164, p.118-124, In Russian. 2 refs.
Earthwork, Frozen fines, Clay soils, Thixotropy.

34-3906
Grouping coal deposits in permafrost areas according to geologic and mining development conditions. [Gruppirovanie ugol'nykh mestorozhdeniĭ raĭonov mnogoletneĭ merzloty po gorno-geologicheskim usloviiam ikh razrabotki].
Gazizov, M.S., et al, *Moscow. Institut gornogo dela. Nauchnye soobshcheniia*, 1979, Vol.173, p.45-50, In Russian.
Kostenko, V.I.
Mining, Coal, Permafrost structure, Permafrost depth, Geologic structures, Mine shafts, Wells, Supports.

34-3907
Lithologic and petrographic peculiarities of rocks in the subpermafrost transition zone of the Sangarskiy coal deposit. [Litologo-petrograficheskie osobennosti porod v podmerzlotnoĭ perekhodnoĭ zone Sangarskogo mestorozhdeniia].
Den'gina, N.I., et al, *Moscow. Institut gornogo dela. Nauchnye soobshcheniia*, 1979, Vol.173, p.50-54, In Russian.
Men'shov, V.V.
Mining, Coal, Permafrost distribution, Permafrost thickness, Permafrost structure, Lithology, Frozen fines.

34-3908
Increasing the stability of mining excavations in permafrost. [O povyshenii ustoĭchivosti vyrabotok v usloviiakh mnogoletneĭ merzloty].
El'chaninov, E.A., *Moscow. Institut gornogo dela. Nauchnye soobshcheniia*, 1979, Vol.173, p.54-62, In Russian. 8 refs.
Mining, Permafrost structure, Ground ice, Mine shafts, Thermal regime, Permafrost control.

34-3909
Optimizing the heating of cargo frozen to walls of railroad cars. [K voprosu ob optimizatsii progreva gruzov primerzaiushchikh k stenkam vagonov].
Portnov, I.G., *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.596, p.53-64, In Russian. 2 refs.
Railroad cars, Frozen cargo, Heating, Unloading.

34-3910
Physical, technical and functional aspects of building design for railroads. [Fiziko-tekhnicheskie i funktsional'nye voprosy proektirovaniia zdaniĭ zheleznodorozhnogo transporta].
Kovrigin, S.D., ed, *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.600, 202p., In Russian. For selected papers see 34-3911 through 34-3920. Refs. passim.
Railroads, Buildings, Permafrost beneath structures, Walls, Windows, Heat loss, Roofs, Snow accumulation, Baykal Amur railroad, Design.

34-3911
Architectural design of railroad depots in the Northern Structural Climatic zone. [Voprosy arkhitekturnogo proektirovaniia zdaniĭ zheleznodorozhnykh depo v Severnoĭ stroitel'no-klimaticheskoĭ zone].
Ermolaeva, E.I., *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.600, p.19-23, In Russian. 2 refs.
Railroads, Buildings, Permafrost beneath structures, Design.

34-3912
Physico-technical peculiarities of inflatable structures used in the North. [Fiziko-tekhnicheskie voprosy proektirovaniia pnevmosooruzheniĭ v svete ikh primeneniia na Severe].
Mikhaĭlov, B.A., et al, *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.600, p.24-28, In Russian. 2 refs.
Gatov, V.M.
Inflatable structures, Thermal properties, Permafrost beneath structures, Construction materials.

34-3913
Determining additional heat losses of buildings through light appertures in the Baykal Amur railroad area. [Opredelenie dopolnitel'nykh teplopoter' cherez svetoproemy zdaniĭ na BAMe].
Cheremisov, K.M., et al, *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.600, p.105-110, In Russian. 3 refs.
Efimova, M.N., Chekanovskaia, E.IA.
Buildings, Windows, Heat loss, Baykal Amur railroad.

34-3914
Experimental studies and determination of equivalent ambient air temperature for technical design of windows. [Eksperimental'nye issledovaniia i opredelenie ekvivalentnoĭ temperatury naruzhnogo vozdukha dlia teplotekhnicheskogo rascheta okonnogo zapolneniia].
Grigor'ev, P.IA., et al, *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.600, p.111-115, In Russian. 3 refs.
Dmitrusev, V.I.
Buildings, Windows, Heat transfer, Heat loss, Wind factors, Air temperature, Design.

34-3915
Thermotechnical qualities of external enclosures of Series-122 residential buildings. [Teplotekhnicheskie kachestva naruzhnykh ograzhdaiushchikh konstruktsiĭ zhilykh domov serii 122].
Efimova, M.N., *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.600, p.122-127, In Russian.
Residential buildings, Walls, Heat loss, Baykal Amur railroad.

34-3916
Melting of snow on attic roofs of railroad buildings. [K voprosu taianiia snezhnogo pokrova na cherdachnykh kryshakh na zdaniiakh zheleznodorozhnogo transporta].
Cheremisov, K.M., et al, *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.600, p.128-136, In Russian. 5 refs.
Antonenko, V.S., Paniutin, A.A.
Roofs, Snow cover distribution, Snow melting, Buildings.

34-3917
Temperature regime of snow covering attic roofs. [Temperaturnyĭ rezhim snezhnogo pokrova na cherdachnykh kryshakh].
Paniutin, A.A., et al, *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.600, p.137-144, In Russian. 4 refs.
Babin, A.V.
Roofs, Snow cover distribution, Snow temperature, Buildings.

34-3918
Thermophysical properties of double-layer translucent silicate glass skylights. [Teplotekhnicheskie kachestva dvukhsloĭnoĭ svetoprozrachnoĭ konstruktsii zenitnykh fonareĭ iz listovogo silikatnogo stekla].
Godin, A.M., *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.600, p.150-158, In Russian. 2 refs.
Roofs, Windows, Buildings, Construction materials, Heat transfer.

34-3919
Selecting translucent enclosures of transport-associated buildings for severe climatic conditions. [K voprosu o vybore svetoprozrachnykh ograzhdeniĭ dlia transportnykh zdaniĭ v raĭonakh s surovym klimatom].
Godin, A.M., *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.600, p.159-162, In Russian. 4 refs.
Industrial buildings, Windows, Heat loss.

34-3920
Possibility of using sodium nitrite antifreeze in reinforced concretes of buildings and structures on railroads. [Vozmozhnost' primeneniia betonov s protivomoroznoĭ dobavkoĭ nitrita natriia v zhelezobetonnykh konstruktsiiakh zdaniĭ i sooruzheniĭ na zheleznykh dorogakh].
Kostiaev, P.S., et al, *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.600, p.179-184, In Russian.
Afanas'ev, S.G., Kurushin, A.D., Kharitonov, IU.N.
Concrete structures, Reinforced concretes, Concrete admixtures, Antifreezes, Railroads.

34-3921
Role of the Soviets in environmental development in the polar regions. [Sovjets role i miljöutviklingen i nordområdene],
Sollie, F., Polhögda, Fridtjof Nansen Stiftelsen, 1979, 15p., Studies AA:P194, In Norwegian.
Environmental impact, Economic development, Mining, Icebergs.

34-3922
Heterogeneous nucleation of ice on surfaces of liquids.
Rosinski, J., *Journal of physical chemistry*, July 10, 1980, 84(14), p.1829-1832, 10 refs.
Heterogeneous nucleation, Ice nuclei, Phase transformations, Liquid solid interfaces, Temperature effects.

34-3923
Effects of the Trans-Alaska pipeline on caribou movements.
Cameron, R.D., et al, Project progress report, Federal Aid in Wildlife Restoration, Project W-17-10 (2nd half) and W-17-11 (1st half), Job No.3.18R, Vol.4, Juneau, Alaska Department of Fish and Game, Nov. 1979, 36p., 17 refs.
Whitten, K.R.
Ecology, Pipelines, Environmental impact, Animals, Distribution, Plants (botany), United States—Alaska.

34-3924
West Antarctic ice sheet fluctuations in the Antarctic Peninsula area.
Sugden, D.E., et al, *Nature*, July 24, 1980, 286(5771), p.378-381, 17 refs.
Clapperton, C.M.
Ice sheets, Ice structure, Glacial geology, Geomorphology, Antarctica—Antarctic Peninsula.
The West Antarctic ice sheet is believed to be inherently unstable because much of it is grounded below sea level. It has been suggested that the ice sheet has withdrawn from its late Wisconsin maximum position, grounded at the edge of the continental shelf, and is now undergoing collapse as a delayed response to the warming and sea-level rise of the Holocene, and that the ice sheet is likely to collapse shortly in response to rising CO2 levels in the atmosphere. The authors present some geomorphological evidence from Alexander Island and the Antarctic Peninsula which does not agree with either hypothesis. Rather, following deglaciation from the Wisconsin maximum, there was less ice than at present around 8,000 yr ago. The ice shelf in George VI Sound has built up subsequently. (Auth.)

34-3925
Young Pioneer camp boarding house "Severnyĭ Artek" of the Bratsk lumber industry complex. [Pionerlager'-pansionat "Severnyĭ Artek" Bratskogo LPK],
Grinev, S., *Na stroĭkakh Rossii*, Dec. 1979, No.12, p.28-29.
Forest land, Residential buildings, Foundations, Roads, Permafrost beneath structures, USSR—Bratsk.

34-3926
Drilling-and-mixing method of building foundations of cemented earth piles. [Burosmesitel'nyĭ metod ustroĭstva fundamentov iz tsementogrunta],
Tokin, A., *Na stroĭkakh Rossii*, Jan. 1980, No.1, p.5-6, In Russian.
Residential buildings, Foundations, Trenching, Drilling, Soil cement, Piles.

34-3927
Local artificial freezing of thawed ground in Yakutsk. [Lokal'noe zamorazhivanie ottaiavshego grunta v IAkutske],
Maksimov, G., et al, *Na stroĭkakh Rossii*, Jan. 1980, No.1, p.9-11, In Russian.
Belov, V., Zaniatin, S., Chebotarev, V.
Large panel buildings, Foundations, Piles, Permafrost beneath structures, Permafrost control, Artificial freezing.

34-3928
Residential buildings on economy-type pile foundations in Murmansk. [Zhilye zdaniia na ekonomichnykh svaĭnykh fundamentakh v usloviiakh Murmanska],
Kaloshin, I., *Na stroĭkakh Rossii*, Jan. 1980, No.1, p.14-15, In Russian.
Residential buildings, Foundations, Gravel, Clays, Sands.

34-3929
Effective use of helicopter cranes. [Effektivnost' primeneniia vertoletov-kranov],
Chernitskiĭ, A., *Na stroĭkakh Rossii*, Jan. 1980, No.1, p.30-32, In Russian.
Helicopters, Cranes (hoists), Construction, Transportation.

34-3930
Petrochemical product admixtures for concretes. [Dobavki v beton produktov neftekhimicheskogo proizvodstva],
Cherepanov, IU., et al, *Na stroĭkakh Rossii*, Jan. 1980, No.1, p.42-43, In Russian.
Concrete admixtures, Petroleum products, Concrete strength, Frost resistance, Low temperature tests.

34-3931
Erection of multistory brick buildings in Noril'sk. [Vozvedenie kirpichnykh zdaniĭ povyshennoĭ etazhnosti v Noril'ske],
Shkliarov, N., et al, *Na stroĭkakh Rossii*, Mar. 1980, No.3, p.32-35, In Russian.
Pikhovkin, V., Kalinin, M.
Residential buildings, Bricks, Cold weather construction, Heating, Mortars, Cement admixtures, Frost resistance.

34-3932
Improving the procedure for installation of antiseepage curtains by the "wall-in-the-ground" method.
Burov, IU.E., et al, *Soil mechanics and foundation engineering*, Nov-Dec. 1978 (Pub. May 80), 16(6), p.304-309, Translated from Osnovaniia, fundamenty i mekhanika gruntov. 1 ref.
Kiselev, V.I., Mikhlin, A.L., Smirnov, IU.S.
Earthwork, Hydraulic structures, Ground water, Seepage, Waterproofing, Underground facilities.

34-3933
Densification of soils prone to slump-type settlement by the gas-detonation method.
Martem'ianov, A.I., et al, *Soil mechanics and foundation engineering*, Nov.-Dec. 1978 (Pub. May 80), 16(6), p.316-320, Translated from Osnovaniia, fundamenty i mekhanika gruntov. 3 refs.
Piskarev, V.V.
Foundations, Fines, Settlement (structural), Soil compaction, Detonation waves.

34-3934
Results of twenty-year monitoring of silication stabilization of Odessa theater foundations.
Arshakuni, D.E., et al, *Soil mechanics and foundation engineering*, Nov.-Dec. 1978 (Pub. May 80), 16(6), p.325-327, Translated from Osnovaniia, fundamenty i mekhanika gruntov.
Golubkov, V.N.
Buildings, Foundations, Loess, Settlement (structural), Soil stabilization, Cements.

34-3935
Determination of settlement due to thawing out of permafrost soil.
Ponomarev, V.D., et al, *Soil mechanics and foundation engineering*, Nov.-Dec. 1978 (Pub. May 80), 16(6), p.328-331, Translated from Osnovaniia, fundamenty i mekhanika gruntov. 7 refs.
Sorokin, V.A., Fedoseev, IU.G.
Foundations, Permafrost beneath structures, Ground thawing, Settlement (structural), Permafrost control, Buildings.

34-3936
Engineering-economic determination of optimum depth of preconstruction thawing of permafrost soils under buildings.
Khrustalev, L.N., *Soil mechanics and foundation engineering*, Nov.-Dec. 1978 (Pub. May 80), 16(6), p.332-337, Translated from Osnovaniia, fundamenty i mekhanika gruntov. 7 refs.
Foundations, Permafrost beneath structures, Ground thawing, Thaw depth, Buildings.

34-3937
Tunneling through quicksand. [Shchity prokhodiat plyvuny],
Zaĭdullin, N., et al, *Metrostroĭ*, 1980, No.1, p.8, In Russian.
IAkobs, IU.
Artificial freezing, Tunneling (excavation), Construction equipment, Quicksand.

34-3938
Erection of building structures at the northern Mining and Concentration Concern No.2. [Montazh stroitel'nykh konstruktsiĭ na severnom GOK-2],
Golubenko, V.V., et al, *Montazhnye i spetsial'nye raboty v stroitel'stve*, Mar. 1980, No.3, p.10-12, In Russian.
Kozhushko, V.V., Pavlyk, P.V.
Mining, Concrete structures, Reinforced concretes, Industrial buildings, Steel structures, Roads, Railroads, Bridges, Permafrost beneath structures.

34-3939
Road building performed on a self-supporting basis. [Dorogi khozialstvennym sposobom],
Shabalin, V.P., et al, *Lesnaia promyshlennost'*, 1979, No.11, p.14-15, In Russian.
Erin, V.G., Kuznetsov, E.A.
Forest land, Swamps, Ice roads, Snow roads.

34-3940
Road construction all year round. [Stroit' dorogi kruglyĭ god],
Siniaev, N.V., *Lesnaia promyshlennost'*, 1979, No.11, p.15-16, In Russian.
Forest land, Swamps, Roads, Cold weather construction, Ice roads, Construction equipment.

34-3941
Optimizing parameters of multibucket excavators of foundation pits. [Issledovaniia po optimizatsii parametrov mnogokovshovykh kotlovanokopatelei],
Solomonov, S.A., *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.598, p.13-21, In Russian.
Foundations, Excavation, Equipment, Frozen ground.

34-3942
Computing the speed of foundation pit excavation with chain-bucket excavators. [Raschet na ETsVM skorosti i vremeni prokhodki kotlovanov tsepnymi kotlovanokopateliami],
Bass, B.A., *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.598, p.22-31, In Russian. 3 refs.
Foundations, Excavation, Equipment, Frozen ground.

34-3943
Experimental study of cutting frozen ground with percussion ground-breaking equipment. [Eksperimental'nye issledovaniia sil rezaniia merzlogo grunta udarnootryvnym rabochim organom],
Solomonov, S.A., *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.598, p.49-57, In Russian. 5 refs.
Excavation, Equipment, Models.

34-3944
Improving machines and equipment for reloading packed cargo at low temperatures. [Povyshenie nadezhnosti mashin i ustroĭstv dlia peregruzki tarnoshtuchnykh gruzov v usloviiakh nizkikh temperatur],
Grinevich, O.I., *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.598, p.85-93, In Russian. 2 refs.
Transportation, Cargo, Unloading, Equipment, Baykal Amur railroad, Cold weather performance.

34-3945
Increased fracturing intervals in frozen and thawed zones of the Nizhne-Arkagalinskiy coal deposit. [Ob intervalakh povyshennoĭ treshchinovatosti v merzloĭ i taloĭ zonakh Nizhne-Arkagalinskogo ugol'nogo mestorozhdeniia],
Kostenko, V.I., et al, *Moscow. Institut gornogo dela. Nauchnye soobshcheniia*, 1974, Vol.125, p.111-116, In Russian. 2 refs.
Men'shov, V.V.
Mining, Coal, Permafrost structure, Fracture zones, Blasting.

34-3946
Studying mining effect on coal seams and the surrounding rock temperature under permafrost conditions. [Issledovanie vliianiia gornykh rabot na temperaturu plasta i vmeshchaiushchikh porod v usloviiakh mnogoletneĭ merzloty],
El'chaninov, E.A., et al, *Moscow. Institut gornogo dela. Nauchnye soobshcheniia*, 1973, Vol.105, p.112-118, In Russian. 6 refs.
Rozenbaum, M.A., Shor, A.I.
Mining, Frozen rock temperature, Coal, Permafrost.

34-3947
Preliminary feasibility study of a tanker transportation system serving the northwest coast of Alaska. Final report.
Halebsky, M., et al, Newport Beach, Calif., Global Marine Development Inc., Feb. 1980, 3 vols., PB80-153 638, PB80-153 646, PB80-153 653, 52 refs.
Lebolits, M., Romley, R.M.
Marine transportation, Tanker ships, Petroleum transportation, Icebreakers, Crude oil, United States—Alaska.

34-3948
Application of recent results in functional analysis to the problem of wetting fronts.
Nakano, Y., *Water resources research*, Apr. 1980, 16(2), MP 1307, p.314-318, 16 refs.
Soil water migration, Soil physics, Boundary value problems, Seepage, Porous materials, Wettability.

Traditionally, in hydrology and soil physics, wetting fronts appearing in porous media described by Darcy's law have not generally been considered to be singular surfaces. Some recent results from functional analysis are presented as evidence supporting the viewpoint that wetting fronts with a finite propagating speed generally are singular surfaces.

34-3949
Water movement in a land treatment system of wastewater by overland flow.
Nakano, Y., et al, *Progress in water technology*, 1979, 11(4/5), MP 1285, p.185-206, 15 refs.
Khalid, R.A., Patrick, W.H., Jr.
Water flow, Waste treatment, Water treatment, Soil water, Saturation, Seepage, Slope orientation, Experimentation.
Water movement in an overland-flow land treatment system was studied experimentally and theoretically. A small-scale physical model was used to obtain experimental data. The theoretical analysis was based upon the shallow water equation for overland flow and the Darcy-Richards law for soil water flow. It was found that the water movement in the system was primarily controlled by the application rate, the friction slope, the slope angle, the hydraulic characteristics of soils, and the evapotranspiration. An approximate analytical solution to steady flow in the system was obtained. It was found that the rate of soil water flow was mainly determined by the saturated conductivity of soils and in less extent by the friction slope and the slope angle in the steady condition. A finite difference solution to non-steady flow was found satisfactory in simulating the experimental data.

34-3950
Random thermal stress in concrete containments.
Singh, M.P., et al, *American Society of Civil Engineers. Structural Division. Journal*, July 1980, 106(ST7), p.1481-1496, 7 refs.
Heller, R.A.
Concrete structures, Thermal stresses, Temperature gradients, Temperature variations, Design, Analysis (mathematics).

34-3951
Arctic line pressure testing alternatives.
Marks, A., *Oil and gas journal*, July 7, 1980, 78(27), p.126-132, 20 refs.
Pipelines, Cold weather performance, Pressure, Hydraulics, Tests, Density, Permafrost, Design criteria.

34-3952
Textiles used in roadbed construction on weak soils. [Tekstil'nye materialy v konstruktsiiakh avtomobil'nykh dorog na slabykh gruntakh],
Polunovskii, A.G., et al, *Avtomobil'nye dorogi*, May 1980, No.5, p.13-15, In Russian. 3 refs.
Roadbeds, Foundations, Construction materials, Roads, Loess, Loams.

34-3953
Forecasting the strength of stabilized soils. [Prognoz prochnosti ukreplennykh gruntov],
Khabibullina, E.N., *Avtomobil'nye dorogi*, May 1980, No.5, p.20-21, In Russian. 1 ref.
Roadbeds, Foundations, Soil stabilization, Soil strength, Roads.

34-3954
Roads in Finland. [Dorogi Finliandii],
Babkov, V.F., *Avtomobil'nye dorogi*, May 1980, No.5, p.28-30, In Russian.
Roads, Roadbeds, Frost heave, Pavements, Winter maintenance, Snow removal, Glaze, Chemical ice prevention.

34-3955
Environmental protection, a public responsibility. [Okhrana prirody zabota obshchaia],
Miloserdov, V.N., *Transportnoe stroitel'stvo*, June 1980, No.6, p.1-2, In Russian.
Environmental protection, Transportation, Railroads, Construction.

34-3956
Increasing transportation capacity of planned latitudinal lines. [Puti effektivnogo uvelicheniia provoznoĭ sposobnosti formiruemykh shirotnykh magistraleĭ],
Engel'ke, V.A., et al, *Transportnoe stroitel'stvo*, June 1980, No.6, p.42-44, In Russian.
Engel'ke, G.V.
Railroads.

34-3957
Performance of support walls built on permafrost. [Osobennosti raboty podpornykh stenok na vechnomerzlykh gruntakh],
Novikov, F.IA., *Transportnoe stroitel'stvo*, June 1980, No.6, p.45-46, In Russian. 3 refs.
Slope stability, Supports, Walls, Permafrost beneath structures, Ground ice, Design.

34-3958
Frost damage to cambium of plants introduced in Arkhangel'sk. [O povrezhdenii zamorozkami kambiia drevesnykh introdutsentov v Arkhangel'ske],
Nilov, V.N., *Moscow. Glavnyi botanicheskii sad. Biulleten'*, 1979, Vol.114, p.50-57, In Russian. 11 refs.
Introduced plants, Trees (plants), Frost resistance, Plant physiology.

34-3959
Investigation of vertical moisture transport in the upper layers of undrained highmoor bogs by means of radioactive isotopes.
[illegible], *Soviet hydrology: selected papers*, 1978, 17(1), p.1-5, 8 refs. For Russian original see 32-4592.
Swamps, Soil water, Moisture transfer, Capillarity, Evaporation, Radioactive isotopes.

34-3960
Role of the thermal factor in the formation of bogs in the Amur Region.
Kholoden, E.E., *Soviet hydrology: selected papers*, 1978, 17(1), p.6-10, 9 refs. For Russian original see 32-4593.
Taiga, Paludification, Peat, Soil freezing, Frost penetration, USSR—Amur River.

34-3961
Characteristics of automatic snow depth monitoring.
Vodop'ianova, L.S., et al, *Soviet hydrology: selected papers*, 1978, 17(1), p.40-42, 6 refs. For Russian original see 33-1235.
Krichak, M.O.
Snow cover distribution, Snow surveys, Snow accumulation, Snow depth, Monitors.

34-3962
Method for the long-range forecasting of the dates of ice appearance in the rivers of the Northeastern USSR.
Savchenkova, E.I., *Soviet hydrology: selected papers*, 1978, 17(1), p.47-50, 5 refs. For Russian original see 33-1474.
River ice, Long range forecasting, Freezeup, Ice forecasting, Ice reporting.

34-3963
Computation of the thickness and structure of the ice cover on rivers in the northern European USSR.
Amineva, V.IA., *Soviet hydrology: selected papers*, 1978, 17(1), p.51-52, 8 refs. For Russian original see 33-1477.
Icebound rivers, Ice surveys, Ice cover thickness, Ice structure, Floating ice.

34-3964
Use of ice jam typification from aircraft observation data in forecasting maximum stages in the Lena River.
Rudnev, A.S., *Soviet hydrology: selected papers*, 1978, 17(1), p.53-56, 3 refs. For Russian original see 33-1481.
Ice conditions, Aerial surveys, Ice surveys, Ice breakup, Ice jams, USSR—Lena River.

34-3965
Remote snow cover measurements for forecasting the runoff of mountain rivers.
Borovikova, L.N., et al, *Soviet hydrology: selected papers*, 1978, 17(1), p.57-61, 5 refs. For Russian original see 32-708.
Konovalov, V.G.
Runoff, River basins, Forecasting, Snow cover distribution, Snow surveys, Snow water equivalent, Remote sensing, Rivers.

34-3966
Mathematical model of water infiltration into frozen soil.
Motovilov, IU.G., *Soviet hydrology: selected papers*, 1978, 17(1), p.62-66, 9 refs. For Russian original see 32-2314.
Frozen ground, Permeability, Meltwater, Ground thawing, Seepage, Soil water migration, Mathematical models.

34-3967
Method of predicting snow avalanches by means of image recognition programs.
Khomeniuk, IU.V., *Soviet hydrology: selected papers*, 1978, 17(1), p.67-73, 5 refs. For Russian original see 32-712.
Avalanche forecasting, Computer applications, Snow surveys, Data processing.

34-3968
Hydrochemical regime of the Severtsov glacier.
Kamalov, L.F., *Soviet hydrology: selected papers*, 1978, 17(1), p.74-76, 4 refs. For Russian original see 32-1598.
Mountain glaciers, Glacier ablation, Glacial hydrology, Meltwater, Glacial rivers, Water chemistry.

34-3969
Results of application of infrared equipment for the investigation of hydrologic objects.
Bogorodskii, V.V., et al, *Soviet hydrology: selected papers*, 1978, 17(1), p.77-79, 4 refs. For Russian original see 31-3181.
Ivanov, V.V., Martynova, E.A., Nalimov, IU.V.
River ice, Sea ice, Ice surveys, Infrared reconnaissance, Infrared equipment, Ice cover thickness, Ice melting, Ice formation.

34-3970
Regime of the present-day glaciation of the Caucasus.
Kotliakov, V.M., et al, *Zeitschrift für Gletscherkunde und Glazialgeologie*, 1979, 15(1), p.7-21, In English with German summary. Refs. p.19-21.
Krenke, A.N.
Glacier mass balance, Mountain glaciers, Alpine glaciation, Glacier heat balance, Climatic factors, USSR—Caucasus.

34-3971
Subglacial travertine and associated deposits in the Carstensz area, Irian Jaya, Republic of Indonesia.
Peterson, J.A., et al, *Zeitschrift für Gletscherkunde und Glazialgeologie*, 1979, 15(1), p.23-29, In English with German summary. 23 refs.
Moresby, J.F.
Subglacial observations, Glacial deposits, Sediments, Glacier beds, Alpine glaciation, Regelation, Theories, Indonesia.

34-3972
Pattern of glacial dispersal and comminution of rock fragments and mineral grains from two point sources.
Shakesby, R.A., *Zeitschrift für Gletscherkunde und Glazialgeologie*, 1979, 15(1), p.31-45, Refs. p.43-45.
Glacial deposits, Rocks, Fines, Glacier flow.

34-3973
Constitutive laws of ice. [Stoffgleichungen von Eis],
Hutter, K., *Zeitschrift für Gletscherkunde und Glazialgeologie*, 1979, 15(1), p.47-63, In German with English and French summaries. 11 refs. Also issued in Zurich. Eidgenössische Technische Hochschule. Versuchsanstalt für Wasserbau, Hydrologie und Glaziologie. Mitteilungen, 1979, No.39, p.7-38.
Ice physics, Ice crystals, Ice creep, Ice elasticity, Ice plasticity, Sea ice, Viscoelasticity, Ice mechanics, Ice salinity.

34-3974
Snow as a mixed dielectric: on the geometry of water inclusions. [Schnee als Mischdielektrikum: zur Geometrie der Wassereinschlüsse],
Ambach, W., et al, *Zeitschrift für Gletscherkunde und Glazialgeologie*, 1979, 15(1), p.65-72, In German with English summary. 11 refs.
Schittelkopf, H.
Snow physics, Snow electrical properties, Snow water content, Dielectric properties.

34-3975
Crystal orientation fabrics in relation to structures and strain, Griesgletscher, Valais, Switzerland.
Hambrey, M.J., *Zeitschrift für Gletscherkunde und Glazialgeologie*, 1979, 15(1), p.73-86, In English with German summary. 24 refs.
Glacier flow, Ice crystal structure, Orientation, Strains, Shear strain, Icefalls, Alpine glaciation.

34-3976
Mass budget of Stubacher Sonnblickkees in the years 1971/72 through 1977/78. [Massenhaushaltswerte vom Stubacher Sonnblickkees für die Jahre 1971/72 bis 1977/78],
Slupetzky, H., *Zeitschrift für Gletscherkunde und Glazialgeologie*, 1979, 15(1), p.87-93, In German with English summary. 6 refs.
Glacier mass balance, Glacier ablation, Glacier alimentation.

34-3977
New mass budget values of Hintereisferner and Kesselwandferner in the Ötztal Alps, 1975/76-1977/78. [Neue Massenhaushaltswerte von Hintereisferner und Kesselwandferner, 1975/76-1977/78],
Markl, G., *Zeitschrift für Gletscherkunde und Glazialgeologie*, 1979, 15(1), p.95-99, In German with English summary. 1 ref.
Glacier mass balance, Glacier ablation, Glacier alimentation, Seasonal variations.

34-3978
Reconstruction of mass budget values of Hintereisferner with climatological data. [Rückrechnung des Massenhaushaltes des Hintereisferners mit Hilfe von Klimadaten].
Steinacker, R., *Zeitschrift für Gletscherkunde und Glazialgeologie,* 1979, 15(1), p.101-104, In German with English summary. 10 refs.
Glacier mass balance, Glacier oscillation, Meteorological data, Climate.

34-3979
Glaciers of the Austrian Alps, 1977/78. [Die Gletscher der österreichischen Alpen 1977/78],
Kinzl, H., *Zeitschrift für Gletscherkunde und Glazialgeologie,* 1979, 15(1), p.105-113, In German.
Mountain glaciers, Glacier mass balance, Austria—Alps.

34-3980
Follow-up measurements in the Pasterze area (Glockner Group), 1978. [Nachmessungen im Bereich der Pasterze (Glocknergruppe) im Jahre 1978],
Wakonigg, H., *Zeitschrift für Gletscherkunde und Glazialgeologie,* 1979, 15(1), p.115-118, In German.
Glacier mass balance, Glacier surveys, Alpine glaciation.

34-3981
Permafrost in Western Canada—a report of the Third International Permafrost Conference.
Péwé, T.L., *Zeitschrift für Gletscherkunde und Glazialgeologie,* 1979, 15(1), p.119-125.
Permafrost, Meetings.

34-3982
Annual report 1978-79.
Alaska. University. Geophysical Institute, Fairbanks, 1979, 190p., Refs. p.151-157.
Glaciers, Glaciology, Geophysical surveys, Meteorology, Research projects, Permafrost, Remote sensing, Volcanoes, Sea ice, Frozen ground.

34-3983
Spatial distribution of water content in the snow cover in Poland. [Rozklad przestrzenny zapasu wody w pokrywie śnieżnej v Polsce],
Sadowski, M., Materialy badawcze. Seria: Hydrologia i oceanologia, Warsaw, Instytut Meteorologii i Gospodarki Wodnej, 1980, 148p., In Polish with English and Russian summaries. 59 refs.
Snow water content, Snow cover distribution, Seasonal variations, Analysis (mathematics), Snow loads, Structures, Poland.

34-3984
Community planning and development in Canada's Northwest Territories.
Gerein, H.J.F., Government of the Northwest Territories, Mar. 1980, 175p., Refs. p.163-165.
Permafrost, Climate, Vegetation, Urban planning, Transportation, Cold weather construction, Building codes, Waste treatment, Telecommunication, Environments, Canada—Northwest Territories.

34-3985
Flow patterns in the central North American ice sheet.
Shilts, W.W., *Nature,* July 17, 1980, 286(5770), p.213-218, 31 refs.
Ice sheets, Ice mechanics, Glacier flow, Paleoclimatology, Glaciation, Glacial deposits, Glacier beds.

34-3986
Crystal size and climatic record down to the last ice age from Antarctic ice.
Duval, P., et al, *Earth and planetary science letters,* June 1980, 48(1), p.59-64, 18 refs.
Lorius, C.
Ice crystal size, Ice cores, Climatic changes.
Crystal size measurements were performed along a 905-m-long ice core obtained from east central Antarctica (Dome C). The expected increase of crystal size with age is observed in the ice deposited during the Holocene; further down major changes appear to be associated with climatic events and, in particular, with the transition from the last glacial age to present conditions. Physical mechanisms which may explain these data are discussed. A tentative estimation of the age of the deep ice is made from the ice crystal growth law. (Auth.)

34-3987
Glaciological studies by Landsat imagery of perimeter of Dronning Maud Land, Antarctica.
Orheim, O., *Oslo. Norsk polarinstitutt. Skrifter,* 1978, No.169, p.69-80, 7 refs.
Sea ice, Ice shelves, Icebergs, Spacecraft, Photointerpretation.
The investigation has utilized Landsat imagery to analyze changes in the Dronning Maud Land coastline between 10W and 20E and to obtain statistical data on ocean dynamics, and sea ice and iceberg distribution in this region of the Antarctic. The imagery for the investigation was provided by National Aeronautics and Space Administration (NASA), USA. Altogether 67 images were received, mostly from the 1975/76 austral summer. Band MSS 7 has been found most useful for the ice studies. The other bands were also used to attempt differentiation between ice floes and icebergs, but with inconclusive results. The best method to distinguish between the ice shelf edge and the fast ice, and to bring out ice rises on the ice shelf, has been to copy the MSS 7 negatives at 5-10 times < normal > exposure. (Auth.)

34-3988
Snow accumulation and snow stratigraphy on Riiser-Larsenisen, Dronning Maud Land, Antarctica.
Repp, K., *Oslo. Norsk polarinstitutt. Skrifter,* 1978, No.169, p.81-92, 7 refs.
Snow accumulation, Snow physics, Snow stratigraphy, Antarctica—Queen Maud Land.
The western part of Riiser-Larsenisen is fairly flat, with small undulations difficult to detect. Outstanding features are an ice dome of 200 metres elevation and a long, narrow depression parallel to the edge of the ice shelf. Snow stratigraphy and density were measured in nine pits, the deepest 4.5 metres. Mean accumulation of all pits for the year 1976 was 588 mm in water equivalent, which is higher than earlier investigations. Five snow cores to depths of 11 to 15 metres were collected for laboratory analyses. (Auth.)

34-3989
Offshore pipelines in the Arctic. *Pipeline and gas journal,* Apr. 1980, 207(4), p.20-24.
Pipe laying, Offshore structures, Engineering, Design, Sea ice, Ice conditions, Beaufort Sea.

34-3990
Small-scale testing of soils for frost action.
Sayward, J.M., *Geotechnical testing journal,* 1979, 2(4), MP 1309, p.223-231, 18 refs.
Frost action, Frost heave, Ice needles, Soil water migration, Soil tests.
A method is described for convenient study of frost action, including soil heaving and needle ice formation. The apparatus is simple and small and the procedure requires only 25 cu cm soil specimens. The method could be useful for screening either large numbers or limited quantities of soils or soil additives for frost susceptibility. The method described was used to perform a limited number of tests with several soils. The tests obtained action in the form of soil heave, ice heave, or ice needles, yielding maximum heights up to three to six times the initial 40-mm soil depth. Maximum growth rates were up to 1 to 3 mm/hr for soil heaves and 3 to 7 or more mm/h for ice heaves and ice needles. Initial trials showed that thickener additives and possibly other treatments can restrict frost action.

34-3991
Assessment of Arctic offshore pipelines.
Muraszew, A., et al, *U.S. Office of Pipeline Safety Regulation. Report,* Apr. 1980, DOT/RSPA/MTB-80/1, 6 sections, 182 refs.
Wright, R.C., Hepperle, C.
Pipe laying, Offshore structures, Ice conditions, Sea ice, Oceanographic surveys, Safety, Engineering, Logistics.

34-3992
Model application to urban groundwater problems of Fairbanks, Alaska.
Kane, D.L., *U.S. Office of Water Research and Technology. Completion report,* Jan. 1980, No.76-2, 30p. PB80-166 465.
Permafrost hydrology, Ground water, Water transport, Soil water migration, Snowmelt, Precipitation (meteorology), Temperature gradients, Models.

34-3993
Flow of salt glaciers.
Wenkert, D.D., *Geophysical research letters,* June 1979, 6(6), p.523-526, 13 refs.
Mountain glaciers, Salt ice, Ice creep, Stress strain diagrams, Ions.

34-3994
Investigating ultraviolet photoelectron spectroscopy of ice.
Abbati, I., et al, *Solid state communications,* Feb. 1979, 29(6), p.511-514, 14 refs.
Braicovich, L., De Michelis, B.
Ice spectroscopy, Hydrogen bonds, Ultraviolet radiation, Photometry.

34-3995
Analysis of morphological characteristics of an alpine glacier icefall. [Analyse des caractères morphologiques d'une chute de glacier alpin],
Tison, J.L., *Revue belge de géographie,* 1978, 102(2/3), p.89-107, In French with English summary. 25 refs.
Icefalls, Glacier mass balance, Glacier flow, Subglacial observations.

34-3996
Relationships among lead, iodine, trace metals and ice nuclei in a coastal urban atmosphere.
Borys, R.D., et al, *Journal of applied meteorology,* Nov. 1979, 18(11), p.1490-1494, 27 refs.
Duce, R.A.
Ice nuclei, Nucleating agents, Aerosols, Particles, Wind direction, Air pollution, Atmospheric composition, Air masses.

34-3997
Keeping it cool with liquid nitrogen. *Concrete construction,* Aug. 1980, 25(8), p.606, 609.
Concrete hardening, Concrete freezing, Artificial freezing, Coolants, Air temperature, Temperature effects.

34-3998
Cloud/icing/visibility analysis systems (CIVAS) and forecast development plan.
Mount, W.D., et al, *U.S. Atmospheric Sciences Laboratory.* [Report], Apr. 1980, ASL-CR-80-0089-1, 64p., ADA-085 530, 2 refs.
Fow, B.R., Mount, B.D.
Aircraft icing, Ice forecasting, Cloud physics, Visibility, Temperature effects, Computer programs.

34-3999
Blow molded polyethylene snow scoop improves on 300-year-old idea. *Plastics design and processing,* Nov. 1979, 19(2), p.38-39.
Polymers, Snow removal, Equipment.

34-4000
Utilization of spaceborne microwave radiometers for monitoring snowpack properties.
Rango, A., et al, *Nordic hydrology,* 1979, 10(1), p.25-40, 17 refs.
Chang, A.T.C., Foster, J.L.
Snow cover distribution, Remote sensing, Radiometry, Microwaves, Snow accumulation, Snow line, Spaceborne photography, Scanning electron microscopy.

34-4001
Polarization processes in the ice lattice. 1. Approach by thermodynamics of irreversible processes. New experimental verification by means of a universal relation.
Hubmann, M., *Zeitschrift für Physik B,* 1979, 32(2), p.127-139, 29 refs.
Ice electrical properties, Polarization (charge separation), Lattice models, Thermodynamic properties, Doped ice, Dielectric properties, Theories.

34-4002
Polarization processes in the ice lattice. 2. Approach by Kirkwood's theory. Comparison with the results from thermodynamics of irreversible processes.
Hubmann, M., *Zeitschrift für Physik B,* 1979, 32(2), p.141-146, 13 refs. For Pt. 1 see 34-4001.
Ice electrical properties, Polarization (charge separation), Lattice models, Molecular structure, Dielectric properties, Theories.

34-4003
Icicles as crystallization phenomena.
Knight, C.A., *Journal of crystal growth,* May 1980, 49(1), p.193-198, 21 refs.
Ice crystal growth, Ice formation, Orientation, Thermal diffusion, Ice structure.

34-4004
Regularities governing the development of the topography and glaciers of Tien Shan. [Zakonomernosti razvitiia rel'efa i lednikov Tian' Shania],
Zabirov, R.D., ed, Frunze, Ilim, 1980, 110p., In Russian. For selected papers 34-4005 through 34-4013. Refs. passim.
Mass balance, Rock streams, Glacier surfaces, Mountain glaciers, Orientation, Glacier flow, Albedo, Snow accumulation, Topographic maps, Flow rate, Glacier ice, Alpine landscapes, USSR—Tien Shan.

34-4005
Velocity fields of the Kara-Batkak glacier. [Polia skorostei lednika Kara-Batkak],
Bakov, E.K., Zakonomernosti razvitiia rel'ef i lednikov Tian' Shania (Regularities governing the development of the topography and glaciers of Tien Shan) edited by R.D. Zabirov, Frunze, Ilim, 1980, p.3-21, In Russian. 8 refs.
Glacier flow, Glacier beds, Glacier surfaces, Glacier mass balance, Flow rate, Glacier ice.

34-4006
Determining glacier areas and orientation of surfaces from topographic maps. [Opredelenie ploshchadei i orientatsii poverkhnostei lednikov po topograficheskim kartam].
Kuz'michenok, V.A., Zakonomernosti razvitiia rel'ef i lednikov Tian' Shania (Regularities governing the development of the topography and glaciers of Tien Shan) edited by R.D. Zabirov, Frunze, Ilim, 1980, p.22-47, In Russian. 22 refs.
Glacier surfaces, Orientation, Topographic maps, Glacier ice, Mathematical models.

34-4007
Variations of glacier surface albedo during summer. [Izmenenie al'bedo poverkhnosti lednika v letnii period].
Dikikh, L.L., Zakonomernosti razvitiia rel'ef i lednikov Tian' Shania (Regularities governing the development of the topography and glaciers of Tien Shan) edited by R.D. Zabirov, Frunze, Ilim, 1980, p.48-57, In Russian. 7 refs.
Glacier surfaces, Albedo, Snowmelt, Glacier ablation, Snowfall.

34-4008
Snow accumulation on Central Tien Shan glaciers. [Snegonakoplenie na lednikakh vnutrennego Tian'-Shania].
Safonova, A.A., Zakonomernosti razvitiia rel'ef i lednikov Tian' Shania (Regularities governing the development of the topography and glaciers of Tien Shan) edited by R.D. Zabirov, Frunze, Ilim, 1980, p.58-67, In Russian. 4 refs.
Mountain glaciers, Glacier surfaces, Snow accumulation, Snow surveys, Snow depth, Snow water equivalent.

34-4009
Formation and development of bald-peak ice in the mountains of Central Tien Shan, Siberia and the Far East. [Formirovanie i razvitie gol'tsovogo l'da v gorakh Tsentral'nogo Tian'-Shania, Sibiri i Dal'nego Vostoka].
Tarakanov, A.G., Zakonomernosti razvitiia rel'ef i lednikov Tian' Shania (Regularities governing the development of the topography and glaciers of Tien Shan) edited by R.D. Zabirov, Frunze, Ilim, 1980, p.96-107, In Russian. 16 refs.
Alpine landscapes, Vegetation factors, Rock streams, Snow melting, Talus, Ice cement.

34-4010
Dynamics of vegetational cover and the development of cryogenic relief forms. [Dinamika rastitel'nogo pokrova i razvitie merzlotnykh form rel'efa].
Tyrtikov, A.P., Moscow, Nauka, 1979, 116p., In Russian with English table of contents enclosed. Refs. p.112-115.
Tundra, Swamps, Ice veins, Arctic landscapes, Deserts, Frost mounds, Patterned ground, Polygonal topography, Vegetation, Lichens, Mosses.

34-4011
Management of forest resources. [Osvoenie lesnykh bogatstv].
Timofeev, N.V., Moscow, Lesnaia promyshlennost', 1979, 144p., In Russian with English table of contents enclosed.
Forestry, Forest land, Taiga, Cryogenic soils, Plant ecology, Biomass, Ecosystems, Roads, Houses, Permafrost beneath structures, Transportation, Baykal Amur railroad.

34-4012
Modeling productivity and frost hardiness of plants. [Modelirovanie produktivnosti i kholodoustoichivosti rastenii].
Kurets, V.K., et al, Leningrad, Nauka, 1979, 15p., In Russian with English table of contents englosed. Refs. p.145-154.
Popov, E.G.
Plants (botany), Frost resistance, Models, Air temperature, Soil temperature, Plant ecology, Microclimatology, Plant physiology, Photosynthesis, Computerized simulation.

34-4013
Hydrophobic-plasticizing admixtures to concretes used in road construction. [Gidrofobno-plastifitsiruiushchie dobavki k dorozhnym betonam].
Teshabaev, R.D., Tashkent, Fan, 1980, 63p., In Russian with English table of contents enclosed. 91 refs.
Pavements, Concrete admixtures, Frost resistance, Concrete strength, Roads, Concretes.

34-4014
Formation and development of swamp systems. [Formirovanie i razvitie bolotnykh sistem].
Kiriushkin, V.N., Leningrad, Nauka, 1980, 88p., In Russian with English table of contents enclosed. 69 refs.
Taiga, Paludification, Glacial deposits, Swamps, Soil formation, Vegetation, Peat, Landscape types, Permafrost distribution, Mapping, Charts.

34-4015
Life in the tundra. [Zhizn' tundry].
Chernov, IU.I., Moscow, Mysl', 1980, 236p., In Russian with English table of contents enclosed. Refs. p.233-235.
Tundra, Cryogenic soils, Plant ecology, Ecosystems, Plants (botany), Animals, Air temperature, Soil temperature, Landscape types, Arctic landscapes.

34-4016
Thawing effect on the strength of roadbeds. [Vliianie ottepeli na prochnost' zemlianogo polotna avtomobil'nykh dorog].
Poritskii, R.Z., *Stroitel'naia teplofizika, teplogazosnabzhenie i ventiliatsiia,* 1978, Vol.4, p.14-24, In Russian. 4 refs.
DLC TA418.52.S78
Roadbeds, Bearing strength, Freeze thaw cycles, Ground thawing, Roads, Design.

34-4017
Design of lightweight multilayered panels with polystyrene foam thermal insulation. [Teplotekhnicheskii raschet oblegchennykh mnogosloinykh panelei s uteplitelem iz penopolistirola].
Zhuk, I.P., et al, *Stroitel'naia teplofizika, teplogazosnabzhenie i ventiliatsiia,* 1978, Vol.4, p.65-72., In Russian. 4 refs.
Ivanova, L.A., Minchenkova, L.P.
DLC TA418.52.S78
Heat loss, Prefabrication, Reinforced concretes, Panels, Thermal insulation, Design, Buildings.

34-4018
Investigations on snow parameters by radiometry in the 3- to 60-mm wavelength region.
Hofer, R., et al, *Journal of geophysical research,* Jan. 20, 1980, 85(C1), p.453-460, 30 refs.
Mätzler, C.
Remote sensing, Snow water content, Radiometry, Temperature variations.

34-4019
A.R.A. Almirante Irizar. *Holland shipbuilding,* Apr. 1979, 28(2), p.76.
Ships, Icebreakers.
An icebreaker ordered by the Argentinian government and built at the Wärtsilä facility in Helsinki was delivered in early 1979. The ship is described in terms of personnel (passengers and crew), stability in heavy weather, power plant, equipment, waste disposal, and ice testing.

34-4020
Ice cores.
MacKinnon, P.K., comp., *Glaciological data,* May 1980, GD-8, 139p., Refs. passim. For selected articles see 32-2118 and 34-4021 through 34-4031, or F-19693, and F-23554 through F-23563.
Ice cores, Data processing, Bibliographies, Antarctica.
Included in this issue are: a brief report of a workshop on the status and future of ice core data and research, held in Boulder in Sep. 1979; an inventory of ice core studies and research facilities in North America and throughout the world with a substantial number of ice core tables and core site maps, including 182 sites throughout Antarctica; information storage and exchange; several contributed papers dealing with various aspects of ice cores; and a classified ice core bibliography containing 345 citations. Many of these separate topics involve Antarctica.

34-4021
Status and future of ice core data.
Barry, R.G., et al, *Glaciological data,* May 1980, GD-8, p.1-4, 4 refs.
MacKinnon, P.K.
Ice cores, Research projects, Glaciology, Data processing.
The authors review the current state of the management of ice core data as data collecting has expanded with the establishment of large scale national and international programs. With the expansion have come problems such as data exchanging, advisability of having a central data base, data formats and standards, and defining archivable data. Future possibilities for data centers are explored.

34-4022
Workshop on the Status and Future of Ice Core Research and Ice Core Data (Boulder, Colorado, 24-26 September 1979). *Glaciological data,* May 1980, GD-8, p.5-14.
Meetings, Research projects, Data processing, Ice cores, Climate, Ice coring drills, Age determination.
Presented here is an outline of reviews and recommendations of working groups on core and core data management, application of ice core research to climate studies, ice core dating, and drill technology and the interface with ice core research needs. Also included is the workshop program schedule and a listing of participants.

34-4023
Ice core inventory.
MacKinnon, P.K., *Glaciological data,* May 1980, GD-8, p.15-57, 7 refs.
Ice coring drills, Core samplers, Ice temperature.
This paper reports the status of past and present ice core investigations, documentation of core sites, the groups currently involved in ice core drilling, the principal centers conducting ongoing ice core analyses, and the availability of cores and data. Ice core tables, listing 414 individual cores, contain data for Arctic Canada, Greenland, temperate ice zones and Antarctica.

34-4024
Ice core information storage and exchange system.
Thompson, J.M., et al, *Glaciological data,* May 1980, GD-8, p.59-63.
MacKinnon, P.K.
Ice cores, Data processing.
This paper presents an overview of a data and information storage and exchange system (DISES) developed by the World Data Center A for Glaciology for the management of ice core and related data. The design of this system consists of specifications for the data file structure, the computer programs necessary to obtain the proposed operational capabilities, and procedures to use the programs and data files within the host computer facility. Elements of this design have been shaped by the nature of ice core data sets and by suggestions received from the glaciological community. (Auth.)

34-4025
Central ice core storage facility—ice core sampling procedures.
U.S. National Science Foundation. Division of Polar Programs, *Glaciological data,* May 1980, GD-8, p.66-68.
Ice cores, Cold storage.
Procedures and criteria are outlined by which researchers may have access to the ice cores stored by NSF's Ice Core Storage Facility. The curator of the facility, following discussions of a project with a researcher makes recommendations to the Chief Scientist, NSF, who approves or disapproves the use of core samples. If approval is given, the curator distributes the samples.

34-4026
Specimen and core-sample distribution policy.
U.S. National Science Foundation. Division of Polar Programs, *Glaciological data,* May 1980, GD-8, p.69-70.
Ice cores, Drill core analysis.
Given here are general policies and procedures established by NSF as to how ice and sediment cores under its authority will be distributed among qualified researchers. Contact addresses and telephone numbers are listed for storage facilities and the kind of material stored at each of the four locations is noted. Ice and sediment cores are those retrieved from drilling in Antarctica during Eltanin cruises, RISP, and DVDP.

34-4027
Ice core sampling.
Radok, U., *Glaciological data,* May 1980, GD-8, p.71-76, 9 refs.
Ice cores, Ice sampling, Research projects, Antarctica, Greenland.
Before fine details of ice core records can be accepted as significant, it will be necessary to compare the features of neighboring cores as a function of their separation. Once the local variability of such features has been established, the way is open to sampling the essential features of major catchments in the Antarctic and Greenland ice sheets. It is suggested that further deep cores are needed on the Byrd flow line, and on flow lines from Dome C towards Casey and Dumont d'Urville, in the regions of relatively fast flow. Together with the existing core data and improved models, these new data will define the thermodynamics and dynamics of two major Antarctic catchments. Concurrent intermediate and shallow sampling programs are needed to complete the material from which their histories could be reconstructed. The concept of a surface sampling task force is outlined. This would collaborate with aerial radar sounding, deep drilling, and computer modeling teams in a coordinated program for completing the task of describing the polar ice sheets as physical systems. (Auth. mod.)

34-4028
Polar Ice Coring Office ice drill status report.
Kuivinen, K.C., et al, *Glaciological data,* May 1980, GD-8, p.77-85, 16 refs.
Koci, B.R.
Ice coring drills.
The report reviews the capabilities and present status of ice drilling equipment developed for use in the Antarctic, Arctic, and other alpine localities. It is limited to a discussion of drilling equipment developed through funding by the NSF-DPP, and currently under the custodianship of the Polar Ice Coring Office. A brief background statement is followed by individual discussions of the seven ice drilling and coring devices currently in the NSF-DPP inventory.

34-4029
Nomenclature applied to ice cores: a geological viewpoint.
Andrews, J.T., *Glaciological data,* May 1980, GD-8, p.87-89, 8 refs.
Ice cores, Terminology.

34-4030
Time-priority studies of deep ice cores.
Gow, A.J., *Glaciological data,* May 1980, GD-8, MP 1308, p.91-102, 18 refs.
Ice cores, Drill core analysis, Antarctica—Byrd Station.
Both the Greenland and Antarctic ice sheets have been successfully core-drilled to bedrock, 1390 m at Camp Century, Greenland in 1966 and 2164 m at Byrd Station, Antarctica in 1968. Core and borehole studies at both sites have revealed a wealth of interesting results, especially at Byrd Station where extensive studies of cores were begun as soon as they were pulled out of the drill hole. Continuing investigations of these Byrd Station drill cores, including recent observations of apparent widespread recrystallization in certain sections of ice core, further confirm the importance of initiating as many studies as possible at the drill site. Any list of the studies that should be conducted on deep ice cores must recognize two kinds of research: 1) those studies of a time-priority nature that must be initiated as soon as cores are pulled to the surface and, 2) other essential studies in which relaxation of the ice is not a factor. These latter studies can generally be deferred until cores are transported to more permanent storage facilities outside Antarctica. (Auth. mod.)

34-4031
Ice core work at the Laboratoire de Glaciologie, CNRS, Grenoble.
Raynaud, D., *Glaciological data,* May 1980, GD-8, p.103-107, 14 refs.
Ice cores, Drill core analysis, Laboratories.
The Laboratoire de Glaciologie is dedicated to environmental science with its main emphasis on alpine glacier and ice sheet studies. The work done by the Grenoble laboratory includes the recovery and analysis of ice cores in order to obtain a record of past environmental conditions that prevailed near the surface of ice masses. For this purpose the best conditions have been found on polar ice sheets where large areas are unaffected by surface melting and ice thicknesses provide long time series. Much of the field work has been done in Antarctica, where cores were drawn for climate and atmospheric composition studies. (Auth. mod.)

34-4032
Origin of the oxygen-isotope composition in the snow cover in East Antarctica.
Vilenskii, V.D., et al, *Geochemistry international,* 1978, 15(2), p.180-185, For Russian original see 10F-21486 or 33-3204. 10 refs.
Tesis, R.V., Kiselevskii, M.A., Kochetkova, S.N.
Snow composition, Isotope analysis, Oxygen isotopes, Antarctica—East Antarctica.
Oxygen-isotope compositions have been determined for snow-cover specimens from five areas between the Mirnyy and Pionerskaya stations in East Antarctica. The height increases away from the coast, while the mean air temperature falls, and this is accompanied by a fall in delta-18-O. In the coastal zone (less than 50 km from Mirnyy, height less than 0.86 km, air temperature above -19 deg) there are only slight variations in the oxygen-isotope composition. Further from the coast, between 50 and 353 km, the variation in delta-18-O with temperature amounts to 0.6% per degree. These variations in delta-18-O in the annual layers include effects arising from the details of the formation at the sampling points, so the data cannot be used directly to trace the temperature variations from year to year. The spatial nonuniformity in the snow deposition also results in considerable nonuniformity in the isotope composition for specimens taken within a restricted area. (Auth.)

34-4033
Geocryological investigations in West Yakutia. [Geokriologicheskie issledovaniia v Zapadnoi IAkutii],
Mel'nikov, P.I., ed, Novosibirsk, Nauka, 1980, 113p., In Russian. For individual papers see 34-4034 through 34-4045. Refs. passim.
Foundations, Permafrost bases, Thermopiles, Power line supports, Hydraulic structures, Earth dams, Permafrost hydrology, Taliks, Buildings, Subpermafrost ground water.

34-4034
Evaluating the depth of seasonal thawing for operating electric power transmission lines. [Nekotorye otsenki glubiny sezonnogo protaivaniia v sviazi s ekspluatatsiei LEP],
Spesivtsev, V.I., et al, Geokriologicheskie issledovaniia v Zapadnoi IAkutii (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.3-10, In Russian.
Snegirev, A.M.
Power lines, Roads, Permafrost beneath structures, Active layer, Thaw depth, Vegetation factors, Human factors, Thermokarst, Gullies, Soil erosion, Construction equipment.

34-4035
Foundations of power transmission lines and substations. [Fundamenty linii elektroperedachi i podstantsii],
Makarov, V.I., et al, Geokriologicheskie issledovaniia v Zapadnoi IAkutii (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.10-22, In Russian. 2 refs.
Ussiat, IU.IA., Kornilov, B.E.
Foundations, Power line supports, Permafrost beneath structures, Stations, Deformation, Permafrost hydrology, Taliks.

34-4036
Experience in using the S.Kh.IA thermopile in Mirnyy. [Opyt primeneniia svai SKhIA pri stroitel'stve v g. Mirnom],
Molochnikov, A.D., Geokriologicheskie issledovaniia v Zapadnoi IAkutii (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.23-26, In Russian.
Foundations, Thermopiles, Permafrost beneath structures, Permafrost control, Buildings.

34-4037
Fluid-bearing thermopiles in foundation construction in the North. [K voprosu o primenenii zhidkostnykh termosifonov v severnom fundamentostroenii],
Makarov, V.I., et al, Geokriologicheskie issledovaniia v Zapadnoi IAkutii (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.26-40, In Russian. 7 refs.
Plotnikov, A.A.
Foundations, Thermopiles, Permafrost hydrology, Taliks, Permafrost control.

34-4038
Engineering preparation of sites for construction on permafrost. [Inzhenernaia podgotovka territorii pri stroitel'stve na vechnomerzlykh gruntakh],
Ivanov, V.S., Geokriologicheskie issledovaniia v Zapadnoi IAkutii (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.40-42, In Russian. 31 refs.
Construction, Site surveys, Frozen rock temperature, Active layer, Permafrost structure, Seasonal freeze thaw, Thaw depth.

34-4039
Calculating temperature fields in permafrost thawing at different temperatures (applied to mining problems). [Raschet temperaturnogo polia v vechnomerzlom gruntc, ottaivaiushchem v spektre temperatur],
Gur'ianov, I.E., Geokriologicheskie issledovaniia v Zapadnoi IAkutii (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.42-62, In Russian. 31 refs.
Mine shafts, Permafrost thermal properties, Ground thawing, Permafrost structure, Frozen fines, Heat transfer, Analysis (mathematics).

34-4040
Optimal configuration of a confining bed under the pressure of subpermafrost ground water. [Optimal'naia konfiguratsiia vechnomerzlogo vodoupora vosprinimaiushchego davlenie podmerzlotnykh vod],
Gur'ianov, I.E., Geokriologicheskie issledovaniia v Zapadnoi IAkutii (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.62-70, In Russian. 9 refs.
Mining, Subpermafrost ground water, Water pressure, Analysis (mathematics).

34-4041
Engineering and geological peculiarities of the Vilyuy River valley at the inflow of the Malaya Botuobiya tributary. [Inzhenerno-geologicheskaia osobennost' doliny Viliuia pri vpadenii v nee r. Malaia Botuobiia],
Beliakov, L.P., et al, Geokriologicheskie issledovaniia v Zapadnoi IAkutii (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.71-80, In Russian. 3 refs.
Moskvina, M.M., Spesivtsev, V.I.
Permafrost beneath rivers, Shore erosion, Permafrost weathering, Permafrost structure, Ice veins, Permafrost hydrology, Solifluction, Landslides.

34-4042
Development of ground ice in hydraulic earth structures. [Razvitie vnutrigruntovykh l'dov v nasypnykh gidrotekhnicheskikh sooruzheniiakh],
Olovin, B.A., Geokriologicheskie issledovaniia v Zapadnoi IAkutii (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.80-87, In Russian. 4 refs.
Hydraulic structures, Earth dams, Ground ice, Foundations, Artificial freezing.

34-4043
Climatic peculiarities of West Yakutia. [Klimaticheskaia osobennost' Zapadnoi IAkutii],
Spesivtseva, N.A., Geokriologicheskie issledovaniia v Zapadnoi IAkutii (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.87-95, In Russian. 4 refs.
Climate, Topographic effects, Atmospheric circulation, Synoptic meteorology, USSR—Yakutia.

34-4044
Determining position and form of zero isotherms in ground thawing under pressure seepage beneath regulators. [Opredelenie polozheniia i formy nulevoi izotermy v ottaivaiushchikh osnovaniiakh reguliatorov pri napornoi fil'tratsii],
Vasil'eva, I.A., et al, Geokriologicheskie issledovaniia v Zapadnoi IAkutii (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.95-102, In Russian. 55 refs.
Volkov, V.I.
Hydraulic structures, Foundations, Permafrost beneath structures, Heat transfer, Soil water migration, Ground thawing, Thawing rate, Models.

34-4045
Thermal regime of residential building foundations when there are unheated rooms beneath the building. [Temperaturnyi rezhim gruntov osnovaniia zhilogo doma s kholodnymi pomeshcheniiami pod zdaniem],
Plotnikov, A.A., Geokriologicheskie issledovaniia v Zapadnoi IAkutii (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.102-107, In Russian. 5 refs.
Residential buildings, Foundations, Permafrost beneath structures, Frozen rock temperature.

34-4046
Structural thermodynamics. A review. [Stroitel'naia teplofizika. Obzornaia informatsiia],
L'vov, G.N., ed, Moscow, 1969, 100p., In Russian. For selected papers see 34-4047 through 34-4051.
DLC TH2231.S84
Walls, Large panel buildings, Lightweight concretes, Panels, Thermal insulation, Joints (junctions), Sealing, Cold weather tests, Residential buildings.

34-4047
Experimental study of air and water permeability of external wall panel joints. [Eksperimental'nye issledovaniia vozdukho- i vodopronitsaemosti stykov naruzhnykh sten],
Roslaia, G.I., Stroitel'naia teplofizika. Obzornaia informatsiia (Structural therodynamics. A review) edited by G.N. L'vov, Moscow, 1969, p.3-8, In Russian.
DLC TH2231.S84
Large panel buildings, Panels, Joints (junctions), Sealing, Residential buildings.

34-4048
Field inspection of thermal properties of 1605 AM/9 series houses with multilayer external walls. [Naturnye teplotekhnicheskie obsledovaniia domov s mnogosloinymi naruzhnymi stenami (seriia 1605 AM/9)],
Bralnina, E.IU., Stroitel'naia teplofizika. Obzornaia informatsiia (Structural therodynamics. A review) edited by G.N. L'vov, Moscow, 1969, p.9-15, In Russian.
DLC TH2231.S84
Large panel buildings, Reinforced concretes, Panels, Joints (junctions), Sealing, Thermal insulation, Cold weather tests, Heat loss.

34-4049
Field inspection and testing of thermal properties of enclosures of a 12-story residential building. [Naturnye teplotekhnicheskie ispytaniia i obsledovaniia ograzhdaiushchikh konstruktsii 12-etazhnogo zhilogo doma],
Bukharova, N.V., Stroitel'naia teplofizika. Obzornaia informatsiia (Structural therodynamics. A review) edited by G.N. L'vov, Moscow, 1969, p.16-28, In Russian.
DLC TH2231.S84
Concrete structures, Large panel buildings, Lightweight concretes, Panels, Heat transfer, Walls, Cold weather tests, Residential buildings.

34-4050
Thermoinsulative properties of lightweight concrete external wall panel joints in buildings of the series II-57 and II-60. [Issledovanie teplozashchitnykh svoistv stykov naruzhnykh panelei iz keramzitobetona dlia domov serii II-57 i II-60].
Surkov, V.I., et al. Stroitel'naia teplofizika. Obzornaia informatsiia (Structural therodynamics. A review) edited by G.N. L'vov, Moscow, 1969, p.29-35, In Russian.
Babenko, I.D.
DLC TH2231.S84
Large panel buildings, Lightweight concretes, Walls, Panels, Joints (junctions), Sealing, Thermal insulation.

34-4051
Winter testing of thermal properties of plastic mobile houses. [Naturnye zimnie teplotekhnicheskie ispytaniia peredvizhnogo domika iz plastmass].
Avdeev, G.K., Stroitel'naia teplofizika. Obzornaia informatsiia (Structural therodynamics. A review) edited by G.N. L'vov, Moscow, 1969, p.89-92, In Russian.
DLC TH2231.S84
Houses, Construction materials, Plastics, Panels, Thermal insulation, Cold weather tests.

34-4052
Construction experience gained by the Trust "Uralstroimekhanizatsiia" [Ob opyte raboty tresta "Uralstroimekhanizatsiia"].
Lamakina, V.S., *Mekhanizatsiia stroitel'stva,* July 1980, No.7, p.2-4, In Russian.
Roads, Railroads, Permafrost beneath structures, Earthwork, Cost analysis, Blasting, Frozen ground.

34-4053
Effectiveness of excavating machines used on the construction of the Baykal Amur railroad and the Surgut-Urengoy line. [Effektivnost' ispol'zovaniia zemlerolnoi tekhniki na ob'ektakh BAMa i trassy Surgut Urengoi].
Bardyshev, O.A., *Mekhanizatsiia stroitel'stva,* July 1980, No.7, p.6-8, In Russian.
Excavation, Earthwork, Baykal Amur railroad, Equipment, Frozen gorund.

34-4054
MGI-58 equipment for layer-by-layer excavation of ground. [Mashina MGI-58 dlia posloinogo frezerovaniia gruntov].
Zakharov, V.A., et al, *Mekhanizatsiia stroitel'stva,* July 1980, No.7, p.17-18, In Russian.
Kopchikov, V.F., Tyrtsyshnyi, V.I., Vasil'ev, E.F.
Earthwork, Excavation, Equipment, Frozen ground.

34-4055
Effective working tool of the ETTs-165 excavator for frozen ground. [Effektivnyi rabochii organ ekskavatora ETTs-165 dlia razrabotki merzlykh gruntov].
Sokolov, L.K., et al, *Mekhanizatsiia stroitel'stva,* July 1980, No.7, p.18-19, In Russian.
Danilov, A.K., Krause, V.Kh., Suurpere, A.O.I.
Earthwork, Excavation, Equipment, Frozen ground.

34-4056
Retooling bulldozers for ripping and uprooting. [Pereoborudovanie bul'dozera dlia rykhleniia i korchevaniia].
Prytkov, I.V., *Mekhanizatsiia stroitel'stva,* July 1980, No.7, p.23-24, In Russian.
Earthwork, Excavation, Equipment, Frozen ground.

34-4057
Joint analysis of satellite and aerial photographs and ground-based measurements for estimating the spatial distribution and temporal variations of snow cover.
Kupriianov, V.V., *Soviet hydrology: selected papers,* 1978, 17(2), p.81-88, 2 refs. Translation from Gosudarstvennyi gidrologicheskii institut, Trudy, 1978, No.243, p.61-77.
Snow cover distribution, Remote sensing, Aerial surveys, Spaceborne photography, Snow melting, Runoff, Snow line, Floods.

34-4058
Use of radar to measure ice thickness in rivers, lakes, and reservoirs.
Chizhov, A.N., et al, *Soviet hydrology: selected papers,* 1978, 17(2), p.116-127.
Glushnev, V.G., Slutsker, B.D., Borodulin, V.V.
Ice cover thickness, Icebound lakes, Icebound rivers, Reservoirs, Airborne radar, Radar echoes, Sounding, Naleds.

34-4059
Estimation of the possible changes in the ice and thermal regimes of the northern Dvina River under the effect of partial runoff withdrawal.
Donchenko, R.V., et al, *Soviet hydrology: selected papers,* 1978, 17(3), p.186-191, 7 refs. Translated from Gosudarstvennyi gidrologicheskii institut, Trudy, No.248, p.3-14.
Kiselev, A.A.
River ice, Ice conditions, Thermal regime, Runoff, Ice jams, USSR—Dvina River.

34-4060
Mathematical model of water infiltration into frozen soils.
Motovilov, IU.G. *Soviet hydrology: selected papers,* 1978, 17(3), p.207-211, 9 refs. For Russian original see 32-4544
Soil freezing, Frozen ground, Soil water migration, Frost penetration, Seepage, Surface water, Permeability, Ground ice, Ice formation, Mathematical models.

34-4061
Winter floods in Leningrad and their study by empirical and hydrodynamic methods.
Drabkin, V.V., et al, *Soviet hydrology: selected papers,* 1978, 17(4), p.246-249, 8 refs. Translated from Leningrad, Universitet. Vestnik, 1978, No.12, p.128-133.
Pomeranets, K.S.
Floods, Ice conditions, Water level, Hydrodynamics, Statistical analysis, USSR—Leningrad.

34-4062
Winter flying package: 1. Ultimate winter enjoyment.
Mackie, D., et al, *Canadian aviation,* Dec. 1978, 51(12), p.22-25.
Beluse, M.
Airplanes, Cold weather operation, Equipment, Logistics, Aircraft icing.

34-4063
Winter flying package: 2. Tips for flying in cold and snow.
Gallagher, J.D., *Canadian aviation,* Dec. 1978, 51(12), p.26-27.
Airplanes, Cold weather operation.

34-4064
Winter flying package: 3. Icing is for cakes, not carbs.
Bramson, A., *Canadian aviation,* Dec. 1978, 51(12), p.27-29.
Aircraft icing, Ice prevention, Cold weather operation.

34-4065
Influence of the choice of glide plane on the theory of the velocity of dislocations in ice.
Whitworth, R.W., *Philosophical magazine,* Apr. 1980, 41(4), p.521-528, 14 refs.
Ice physics, Ice crystals, Proton transport, Orientation, Velocity, Theories.

34-4066
Numerical solution of a parabolic free boundary problem via Newton's method.
Baumeister, J., et al, *Institute of Mathematics and its Applications. Journal,* Mar. 1980, 25(2), p.99-109, 9 refs.
Hoffmann, K.-H., Jochum, P.
Moisture, Ice water interface, Heat transfer, Stefan problem, Boundary value problems, Analysis (mathematics).

34-4067
Internal ducted propulsion system applicable to ice conditions.
Burnett, R.F., *Naval architect,* Mar. 1980, No.2, p.53-54.
Icebreakers, Impact strength, Propellers, Sea ice, Ice conditions.

34-4068
Japanese develop Archimedean screw tractor. *Ocean industry,* July 1980, 15(7), p.11.
Tractors, All terrain vehicles, Pack ice, Snow vehicles, Water, Propellers, Sands, Sea ice.

34-4069
Frost action on immature cement paste—microstructural features.
Kayyali, O.A., et al, *American Concrete Institute. Journal,* July-Aug. 1980, No.4, p.264-268, 8 refs.
Page, C.L., Ritchie, A.G.B.
Cement admixtures, Frost action, Microstructure, Freeze thaw tests, Compressive properties, Durability, Mechanical properties, Cracking (fracturing).

34-4070
Summer temperatures of cryosolic soils in the north-central Keewatin, N.W.T.
Tarnocai, C., *Canadian journal of soil science,* May 1980, 60(2), p.311-327, 18 refs. In English with French summary
Permafrost thermal properties, Soil temperature, Active layer, Seasonal freeze thaw, Slope orientation, Vegetation factors, Drainage, Topographic effects.

34-4071
Active and passive microwave response to snow parameters. 1. Wetness.
Stiles, W.H., et al, *Journal of geophysical research,* Feb. 20, 1980, 85(C2), p.1037-1044, 7 refs
Ulaby, F.T.
Snow water content, Backscattering, Microwaves, Radar echoes, Diurnal variations, Temperature effects, Snow depth, Wet snow.

34-4072
Active passive microwave response to snow parameters. 2. Water equivalent of dry snow.
Ulaby, F.T., et al, *Journal of geophysical research,* Feb. 20, 1980, 85(C2), p.1045-1049, 8 refs.
Stiles, W.H.
Snow water equivalent, Microwaves, Backscattering, Soil water, Radar echoes, Temperature effects, Analysis (mathematics), Experimentation.

34-4073
Long-period gravity waves in ice-covered sea.
Bates, H.F., et al, *Journal of geophysical research,* Feb. 20, 1980, 85(C2), p.1095-1100, 18 refs.
Shapiro, L.H.
Ocean waves, Wave propagation, Floating ice, Ice sheets, Ice elasticity, Ice mechanics, Sea ice, Compressive properties, Mathematical models, Gravity waves.

34-4074
Permittivity of ice and water at millimeter wavelengths.
Blue, M.D., *Journal of geophysical research,* Feb. 20, 1980, 85(C2), p.1101-1106, 7 refs.
Ice optics, Water chemistry, Reflectivity, Dielectric properties, Wave propagation, Temperature effects.

34-4075
Summary of Great Lakes weather and ice conditions, winter 1977-78.
Assel, R.A., et al, *U.S. National Oceanic and Atmospheric Administration. NOAA technical memorandum,* Dec. 1979, ERL GLERL-26, 123p., PB80-179 203, 10 refs.
Boyce, D.E., DeWill, B.H., Wartha, J., Keyes, F.A.
Lake ice, Ice formation, Ice conditions, Ice breakup, Meteorological data.

34-4076
The Haus-Tanaka model for the Ice VII-Ice VIII phase transition.
Ho-Ting-Hun, J., et al, *Australian journal of physics,* Mar. 1980, 33(1), p.107-115, 17 refs.
Oitmaa, J.
Ice models, High pressure ice, Phase transformations.

34-4077
Snowplowable raised reflective pavement markers at hazardous locations in New Jersey.
Graf, C.R., et al, *U.S. Federal Highway Administration. Division of Research and Development. Report,* Sep. 1979, FHWA/NJ-80/011-4668, 55p.
Roberts, A.W.
Markers, Pavements, Snow removal, Design, Cost analysis, Reflectivity.

34-4078
Alaska village demonstration projects.
Reid, B.H., *U.S. Environmental Protection Agency. Environmental Research Laboratory. Report,* Mar. 1980, EPA-600/3-80-039, 52p., 17 refs.
Utilities, Water supply, Water treatment, Waste disposal, Health, Equipment, Cost analysis, Research projects.

34-4079
Fate and effects of crude oil spilled on subarctic permafrost terrain in interior Alaska.
Johnson, L.A., et al, *U.S. Environmental Protection Agency. Environmental Research Laboratory. Report,* Mar. 1980, EPA-600/3-80-040, MP 1310, 128p., Refs. p.78-83.
Sparrow, E., Jenkins, T.F., Collins, C.M., Davenport, C.V., McFadden, T.
Oil spills, Permafrost thermal properties, Environmental impact, Thermal regime, Subarctic regions, Seasonal variations, Experimentation.
This study was conducted to determine both the short- and long-term effects of spills of hot Prudhoe Bay crude oil on permafrost terrain in subarctic interior Alaska. Two experimental oil spills of 7570 liters (2000 gallons) each on 500 sq m

test plots were made at a forest site underlain by permafrost near Fairbanks, Alaska. The oil spills, one in winter and one in summer, were conducted to evaluate their effect during these two seasonal extremes. Oil movement, thermal regime, botanical effects, microbiological responses, permafrost impact, and composition of the oil in the soil were monitored for two years.

34-4080
Knik Glacier, Alaska, May 1979 monument and glacier survey.
Trabant, D.C., et al, *U.S. Geological Survey. Open-file report*, 1979, 80-48, 20p. + 2 maps, 4 refs.
Mayo, L.R.
Glacier surveys, Glacier surfaces, Profiles, Glacial lakes, United States—Alaska—Knik Glacier, United States—Alaska—George, Lake.

34-4081
Snow and ice removal from pavement using stored earth energy.
Long, D.C., et al, *U.S. Federal Highway Administration. Offices of Research and Development. Technology sharing report*, Feb. 1980, FHWA-TS-80-227, 72p.
Baldwin, J.S.
Snow removal, Ice removal, Pavements, Heating, Heat pipes, Geothermal thawing.

34-4082
Recessed snowplowable markers.
Niessner, C.W., *U.S. Federal Highway Administration. Offices of Research and Development. Technology sharing report*, Mar. 1980, FHWA-TS-80-225, 22p., 5 refs.
Markers, Pavements, Snow removal, Visibility.

34-4083
Influence of the diffusion of vapor and heat on the morphology of ice crystals grown from the vapor.
Gonda, T., *Journal of crystal growth*, May 1980, 49(1), p.173-181, 15 refs.
Ice crystal growth, Ice crystal structure, Vapor diffusion, Thermal diffusion, Thermal conductivity.

34-4084
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Alpine landscapes, Landscape types, Vegetation, Mapping.

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Taiga, Environmental protection, Forest fires, Baykal Amur railroad.

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Swamps, Permafrost distribution, Land reclamation, Drainage, Permafrost hydrology, Mapping, Water supply, Wells, Irrigation, Suprapermafrost ground water, Subpermafrost ground water, USSR—Transbaikal, USSR—Baykal Lake.

34-4096
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Land reclamation, Swamps, Permafrost distribution, Permafrost hydrology, Mapping, USSR—Transbaikal.

34-4097
Hydrogeologic and land reclamation conditions of the Khotay swamp in the Barguzin depression. [Gidrogeologo-meliorativnye usloviia Khotaisiskogo massiva (Barguzinskaia vpadina)].
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Permafrost beneath rivers, Swamps, Drainage, Land reclamation, USSR—Barguzin River.

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River basins, Plains, Alluvium, Permafrost distribution, Microrelief, Moraines, Thermokarst, Ground ice, Ice veins, Land reclamation.

34-4100
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Geocryology, Slope processes, Cryogenic soils, Solifluction, Mudflows, Avalanches, Permafrost weathering.

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Geomorphology, Slope processes, Permafrost distribution, Geocryology, Soil erosion, Cryogenic soils, Taiga, Baykal Amur railroad, Roads, Vegetation factors.

34-4102
Formation of accumulative relief of the Ogoronskaya Basin (eastern part of the Baykal Amur railroad) under permafrost conditions. [Formirovanie akkumuliativnogo rel'efa Ogoronskoi vpadiny (vostochnyi uchastok BAM'a) v usloviiakh vechnoi merzloty].
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Plains, Geocryology, Slope processes, Ground ice, Soil erosion, Solifluction, USSR—Zeya River, USSR—Bureya River.

34-4104
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34-4107
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Environmental protection, Mining, Construction materials, Forestry, Roads, Construction equipment, Cryogenic soils, Soil erosion, Permafrost depth, Ground ice.

34-4108
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34-4109
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Tundra, Transportation, Tracked vehicles, Soil erosion, Vegetation, Environmental protection.

34-4110
Development of vegetation at the bottom of drained thermokarst lakes in subarctic tundra. ⌐Razvitie rastitel'nosti na dne spushchennykh termokarstovykh ozer v subarkticheskoĭ tundre⌐.
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34-4111
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34-4112
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Forest fires, Landscape types, Taiga, Forest tundra, Alpine tundra, Cryogenic soils, Vegetation.

34-4113
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Glacial geology, Patterned ground, Cirques, Glacier ice, Antarctica—Black Coast.
The physiography and glacial geomorphology of the central Black Coast, Palmer Land, are described. Weathering processes are discussed in relation to the widespread disintegration of the bedrock. A comprehensive account of differentially eroded forms is given, and some evidence is put forward supporting theories as to the origin and development of cavernous weathering. Some small-scale patterned ground features are recorded with suggested processes of formation in the antarctic environment. The occurrence of ubiquitous glacial erratics and three supraglacial moraines is noted. (Auth.)

34-4114
Physiography of part of north-eastern Palmer Land.
Anckorn, J.F., *British Antarctic Survey. Bulletin*, Jan. 1980, No.49, p.157-166, 11 refs.
Geologic structures, Topographic features, Ice cover, Antarctica—Palmer Land.
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34-4115
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Sea ice, Drift, Tides, Antarctica—Argentine Islands, Antarctica—George VI Sound.
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34-4116
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34-4117
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Medvedev, A.V.
Frozen rock temperature, Seasonal freeze thaw, Snow cover effect, Analysis (mathematics).

34-4118
Rapid way of finding temperature shift in homogeneous seasonally and perennially frozen strata. ⌐Express-metod nakhozhdeniia temperaturnoĭ sdvizhki v odnorodnykh tolshchakh sezonno- i mnogoletnemerzlykh gornykh porod⌐.
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Frozen rock temperature, Seasonal freeze thaw, Permafrost thermal properties, Soil air interface, Heat transfer, Stefan problem.

34-4119
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Frozen rock temperature, Frost penetration, Soil water migration, Heat transfer, Mass transfer, Phase transformations, Mathematical models, Stefan problem.

34-4120
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Geocryology, Forecasting, Aerial surveys, Spaceborne photography, Models, Laboratory techniques, Mathematical models.

34-4121
Indices used in evaluating the stability of permafrost areas to variations in natural conditions and consequences of human activities in permafrost areas. ⌐Priznaki otsenki ustoĭchivosti territorii k izmeneniiam prirodnykh faktorov i tekhnogennym vozdeĭstviiam v oblasti vechnoĭ merzloty⌐.
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34-4122
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Ground thawing, Ground ice, Soil water migration, Deformation, Settlement (structural), Analysis (mathematics).

34-4123
Methods of studying frozen rock properties during geocryological surveying. ⌐K metodike izucheniia svoĭstv merzlykh gornykh porod pri merzlotnoĭ s"emke⌐.
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34-4124
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34-4125
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Permafrost origin, Permafrost distribution, Permafrost structure, Geologic structures, Geologic history, USSR—Kamchatka Peninsula.

34-4126
Special geocryologic-engineering-geologic regionalization of coal mining areas in South Yakutia. ⌐Opyt spetsial'nogo merzlotno-inzhenerno-geologicheskogo raĭonirovaniia ugol'nykh mestorozhdeniĭ IUzhnoĭ IAkutii⌐.
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34-4127
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34-4128
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Geocryology, Permafrost distribution, Permafrost structure, Forest land, Swamps, Peat.

34-4129
Amount of geocryologic information obtained from local space photographs under the conditions of Aldan-Stanovoy region. [Geokriologicheskaia informativnost' lokal'nykh kosmicheskikh snimkov (primenitel'no k usloviiam Aldano-Stanovogo regiona)].
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Spaceborne photography, Geocryology, USSR—Stanovoy Range, USSR—Aldan.

34-4130
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Alpine landscapes, Rock streams, Permafrost hydrology, Ground ice, Baykal Amur railroad, USSR—Transbaikal.

34-4131
Direct-current electrical prospecting methods used in solving geocryologic-hydrogeologic problems in the Baykal Amur railroad area. [Primenenie metodov elektrorazvedki postoiannym tokom pri reshenii zadach merzlotno-gidrogeologicheskikh issledovanii v zone osvoeniia trassy BAM].
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Romanovskii, V.E.
Site surveys, Geocryology, Baykal Amur railroad, Hydrogeology, Permafrost hydrology, Electromagnetic prospecting.

34-4132
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Permafrost distribution, Hot springs, Permafrost hydrology, Taliks, Baykal Amur railroad.

34-4133
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Geocryology, Frozen fines, Clays, Frost penetration, Soil water migration, Phase transformations, Cryogenic structures, Cryogenic textures.

34-4134
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Frozen fines, Sands, Loams, Adhesion, Materials, Wood, Rocks, Concretes.

34-4135
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Frozen fines, Sands, Density (mass/volume), Thermal conductivity, Soil water, Phase transformations.

34-4136
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Frozen fines, Mechanical properties, Seasonal freeze thaw, Active layer.

34-4137
Drilling fluids for West Siberian fields. [Burovye rastvory dlia mestorozhdenii Zapadnoi Sibiri].
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Petroleum industry, Drilling, Drills, Drilling fluids, Permafrost.

34-4138
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Subarctic landscapes, Environmental protection, Petroleum industry, Transportation, Permafrost beneath structures, Permafrost control, Foundations, Tundra, Soil erosion, Vegetation factors.

34-4139
Discovery of the Tanymas country. [Otkrytie strany Tanymas].
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Alpine landscapes, Deserts, Alpine glaciation, Glacier ice, Ice surveys, Aerial surveys, USSR—Pamirs.

34-4140
Calculating temperature field of block-by-block upbuilt concrete structures using Laplace numerical conversion technique. [Raschet temperaturnogo polia poblochno narashchivaemogo betonnogo massiva s ispol'zovaniem chislennogo obrashcheniia Laplasa].
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Hydraulic structures, Dams, Concrete structures, Concrete placing, Winter concreting, Concrete freezing, Temperature distribution.

34-4141
Regularities governing penetration of a hard body into ice at supercritical impact velocities. [Zakonomernosti vnedreniia tverdogo tela v led pri sverkhkriticheskikh skorostiakh soudareniia].
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Berezovskii, A.A.
Ice physics, Impact strength, Ice deformation, Analysis (mathematics).

34-4142
Effects of zonality and environmental conditions on horizontal structure of phytocenoses of flat palsa peat bogs in West Siberia. [Vliianie zonal'nosti i ekologicheskikh uslovii na gorizontal'nuiu strukturu fitotsenozov ploskobugristykh torfianikov Zapadnoi Sibiri].
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34-4143
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Forest soils, Thermal regime, Models, Seasonal freeze thaw, Snow cover effect.

34-4144
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Swamps, Drainage, Vegetation patterns, Plant ecology, Ecosystems, Mosses, Lichens.

34-4145
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34-4146
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Swamps, Tundra, Vegetation, Forest tundra, Taiga, Litter, Mosses, Biomass, Radioactive isotopes, Fallout, Composition.

34-4147
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Continuous permafrost, Permafrost origin, Permafrost distribution, Permafrost thermal properties, Permafrost structure, Sporadic permafrost, Frozen ground temperature, Permafrost hydrology, Thermokarst, Tundra, Taiga.

34-4148
Problems in designing telemetering equipment for complex soil and climatic conditions in West Siberia. [Problemy sozdaniia sistem telemekhaniki dlia slozhnykh pochvenno-klimaticheskikh uslovii Zapadnoi Sibiri].
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Petroleum industry, Wells, Pipelines, Permafrost beneath structures, Telemetering equipment, Design.

34-4149
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Hydraulic structures, Earth dams, Rock fills, Permafrost beneath structures, Earthwork, Tailings, Ground ice, Electric power plants.

34-4150
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Geocryology, Engineering geology, Hydraulic structures, Mining, Research projects.

34-4151
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Hydraulic structures, Earth dams, Rock fills, Permafrost beneath structures, Electric power plants, USSR—Yakutia, USSR—Vilyuy River.

34-4152
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Hydraulic structures, Earth dams, Rock fills, Ground ice, Permafrost beneath structures, Electric power plants, Cold weather construction, Construction materials.

34-4153
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Hydraulic structures, Earth dams, Rock fills, Ground ice, Permafrost beneath structures, Frozen rock temperature, USSR—Vilyuy River.

34-4154
Impervious frozen ground screens in earth dams of the "frozen" type. [Protivofil'tratsionnye merzlotnye zavesy v gruntovykh plotinakh "merzlogo" tipa].
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Hydraulic structures, Earth dams, Permafrost bases, Soil freezing, Artificial freezing, Permafrost control, Construction equipment.

34-4155
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Earth dams, Soil freezing, Artificial freezing, Cooling systems, Permafrost bases, Air temperature, Frozen rock temperature, Heat transfer.

34-4156
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Hydraulic structures, Earthwork, Tailings, Ponds, Embankments, Soil freezing, Ground ice, Permafrost beneath structures, Cold weather operation.

34-4157
Structural interpretation of thawing ground compressibility. [Strukturnaia interpretatsiia szhimaemosti ottaivaiushchego grunta], Gur'ianov, I.E., Stroitel'stvo i ekspluatatsiia gidrotekhnicheskikh sooruzhenii v Zapadnoi IAkutii (Construction and operation of hydraulic structures in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1979, p.65-84, In Russian. 21 refs.
Soil mechanics, Frozen ground, Cryogenic structures, Cryogenic textures, Porosity, Ground thawing, Compressive strength, Deformation.

34-4158
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Glacial deposits, Sediments, Stratigraphy, Glacier flow, Glacier beds, Landforms, Glacier surveys, Paleoclimatology.

34-4159
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Lake ice, Ice thermal properties, Thermodynamics, Pressure ridges, Shore erosion, Shoreline modification, Ice surface, Water level, Climatic changes.

34-4160
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Boreholes, Sea ice, Recording, Ice physics, Ice mechanics, Ice composition, Tensile properties, Stresses, Pressure ridges, Fracturing, Rock mechanics.

34-4161
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River ice, Icebound rivers, Ice navigation, Ice mechanics, Ice physics, Hydraulic structures, Impact strength, Ice jams, Ice control, Models.

34-4162
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Snow hydrology, Snow water content, Glacial hydrology, Permafrost hydrology, Ice cover, Remote sensing, Laboratory techniques, Measuring instruments, Snowfall, Snowmelt, Meteorological data.

34-4163
Seasonal variations of soil formation in the Lake Baykal area. [Osobennosti sezonnoi dinamiki pochvoobrazovaniia v Pribaikal'e], Snytko, V.A., et al, Pochvy Irkutskoi oblasti, ikh ispol'zovanie i melioratsiia (Soils of the Irkutsk region, their use and melioration) edited by V.A. Kuz'min, Irkutsk, 1979, p.36-48, In Russian. 7 refs.
Sazonov, A.G., Grudinina, N.A.
Soil formation, Podsol, Cryogenic soils, Soil freezing, Frost penetration, Soil water migration, Soil chemistry, USSR—Baykal Lake.

34-4164
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Tundra, Forest tundra, Taiga, Swamps, Cryogenic soils, Vegetation, Human factors, Soil erosion, Permafrost transformation, Environmental protection.

34-4165
Studying the biosphere of North Siberia for environmental protection. [Ob izuchenii biosfery Severa Sibiri v interesakh prirodookhrany], Luchitskii, I.V., et al, Problemy ratsional'nogo prirodopol'zovaniia i kontrolia kachestva prirodnoi sredy Severa Sibiri (Problems in rational utilization of natural resources and environmental control in North Siberia) edited by N.V. Cherskii, Yakutsk, SO AN SSSR, 1979, p.3-19.
Cherskii, N.V., Vozin, V.F.
Environmental protection, Forestry, Mining, Petroleum industry, Forest tundra, Taiga.

34-4166
Influence of water management practices on environments of the North. [Voprosy vliianiia vodokhoziaistvennykh meropriiatii na okruzhaiushchuiu sredu v raionakh Severa], Voropaev, G.V., Problemy ratsional'nogo prirodopol'zovaniia i kontrolia kachestva prirodnoi sredy Severa Sibiri (Problems in rational utilization of natural resources and environmental control in North Siberia) edited by N.V. Cherskii, Yakutsk, SO AN SSSR, 1979, p.20-27, In Russian.
Mining, Petroleum industry, Water supply, Permafrost hydrology, Environmental protection, Engineering geology.

34-4167
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Penenko, V.V.
Economic development, Human factors engineering, Air pollution, Environmental protection, Mathematical models.

34-4168
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Air pollution, Water pollution, Environmental protection, Arctic Ocean.

34-4169
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Pozdniakov, L.K., Shcherbakov, I.P.
Forest tundra, Taiga, Forestry, Cryogenic soils, Economic development, Environmental protection.

34-4170
Stability of tundra ecosystems in North Siberia. [Ustoichivost' tundrovykh ekosistem v usloviiakh Severa Sibiri], Bol'shakov, V.N., et al, Problemy ratsional'nogo prirodopol'zovaniia i kontrolia kachestva prirodnoi sredy Severa Sibiri (Problems in rational utilization of natural resources and environmental control in North Siberia) edited by N.V. Cherskii, Yakutsk, SO AN SSSR, 1979, p.60-66, In Russian.
Danilov, N.N.
Tundra, Forest tundra, Cryogenic soils, Permafrost hydrology, Plant ecology, Ecosystems.

34-4171
Geological aspects of use and protection of environments in northern West Siberia related to the development of oil and gas deposits. [Geologicheskie aspekty ratsional'nogo ispol'zovaniia i okhrany okruzhaiushchei sredy Severa Zapadnoi Sibiri v sviazi s osvoeniem neftianykh i gazovykh mestorozhdenii], Sergeev, E.M., et al, Problemy ratsional'nogo prirodopol'zovaniia i kontrolia kachestva prirodnoi sredy Severa Sibiri (Problems in rational utilization of natural resources and environmental control in North Siberia) edited by N.V. Cherskii, Yakutsk, SO AN SSSR, 1979, p.95-103, In Russian.
Trofimov, V.T., Baulin, V.V.
Tundra, Forest tundra, Taiga, Environmental protection, Petroleum industry, Soil erosion, Permafrost transformation.

34-4172
Mining effect on natural environments. [Vliianie gornodobyvaiushchei promyshlennosti na okruzhaiushchuiu sredu], Shemiakin, E.I., Problemy ratsional'nogo prirodopol'zovaniia i kontrolia kachestva prirodnoi sredy Severa Sibiri (Problems in rational utilization of natural resources and environmental control in North Siberia) edited by N.V. Cherskii, Yakutsk, SO AN SSSR, 1979, p.104-111, In Russian.
Mining, Environmental protection, Tundra, Forest tundra, Taiga.

34-4173
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Bobov, N.G.
Economic development, Soil erosion, Permafrost transformation, Environmental protection.

34-4174
Environmental protection in North Siberia. [Okhrana prirody Severa Sibiri], Gerasimov, I.P., Problemy ratsional'nogo prirodopol'zovaniia i kontrolia kachestva prirodnoi sredy Severa Sibiri (Problems in rational utilization of natural resources and environmental control in North Siberia) edited by N.V. Cherskii, Yakutsk, SO AN SSSR, 1979, p.122-138, In Russian.
Geocryology, Permafrost hydrology, Permafrost transformation, Thermokarst, Human factors, Environmental protection.

34-4175
Effect of human activities on the vegetational cover of Taymyr. [Antropogennye vozdeistviia na rastitel'nyi pokrov Taimyra], Shchelkunova, R.P., Problemy ratsional'nogo prirodopol'zovaniia i kontrolia kachestva prirodnoi sredy Severa Sibiri (Problems in rational utilization of natural resources and environmental control in North Siberia) edited by N.V. Cherskii, Yakutsk, SO AN SSSR, 1979, p.139-152, In Russian. 18 refs.
Tundra, Forest tundra, Cryogenic soils, Vegetation, Human factors, Soil erosion, Permafrost transformation, Environmental protection, USSR—Taymyr Peninsula.

34-4176
Forecasts and calculations of hydrometeorological elements of northern seas. [Prognozy i raschety gidrometeorologicheskikh elementov severnykh morei], Terziev, F.S., ed, *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1980, Vol.348, 140p., In Russian. For selected papers see 34-4177 through 34-4185. Refs. passim.
Shores, Wind velocity, Wind direction, Air temperature, Sea ice, Ice conditions, Drift, Ice edge, Radar photography, Weather forecasting, Mathematical models, Arctic Ocean.

34-4177
Results of scientific investigations of the Murmansk branch of the Arctic and Antarctic Scientific Research Institute during 1972-1976. [Nekotorye itogi nauchno-issledovatel'skoi raboty Murmanskogo filiala AANII za 1972-1976 gg.],
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Hydrology, Meteorology, Weather forecasting, Wind velocity, Air temperature, Ice conditions, Drift, Research projects, Arctic Ocean.

34-4178
Surge lowering of levels in the Barents and White seas. [Sgonnye ponizheniia urovnia na Barentsovom i Belom moriakh],
Potanin, V.A., et al, *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1980, Vol.348, p.13-20, In Russian. 10 refs.
Denisov, V.V.
Sea level, Storms, Tides, Shore erosion, Atmospheric disturbances, Wind velocity, Weather forecasting, Ice conditions, Ice forecasting.

34-4179
Calculating regime characteristics of surge waves from standard wind field data. [Raschet rezhimnykh kharakteristik voln zybi po tipovym poliam vetra],
Dzheniuk, S.L., *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1980, Vol.348, p.21-29, In Russian. 5 refs.
Ocean currents, Ocean waves, Wind velocity, Wind direction, Weather forecasting, Meteorological charts.

34-4180
Computer analysis of radar ice cover survey data. [Obrabotka rezul'tatov radiolokatsionnoi s"emki ledianogo pokrova na EVM],
Zubakin, G.K., et al, *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1980, Vol.348, p.30-34, In Russian. 4 refs.
Zuev, A.N., Malorov, O.N.
Sea ice, Drift, Radar photography, Ice reporting, Ice forecasting.

34-4181
Calculating geometric characteristics of ice cover. [K raschetu geometricheskikh kharakteristik ledianogo pokrova],
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Petrukovich, V.I.
Hydraulic structures, Sea ice, Ice loads, Drift, Ice navigation, Ice cover thickness, Polynyas, Ice cover strength.

34-4182
Ice balance of the Danish Strait during anomalous glaciation years. [Ledovyi balans Datskogo proliva v anomal'nye po ledovitosti gody],
Antropova, L.V., et al, *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1980, Vol.348, p.41-46, In Russian. 4 refs.
Kogan, B.A.
Sea ice, Ice edge, Seasonal variations, Ice formation, Ice deterioration, Ice forecasting.

34-4183
Forecasting ice conditions and ice edge position in the Danish Strait for fall-winter periods. [Vozmozhnosti prognoza ledovitosti i polozheniia kromki l'da v Datskom prolive na osenne-zimnii period],
Kogan, B.A., et al, *Leningrad Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1980, Vol.348, p.47-54, In Russian. 8 refs.
Zuev, A.N.
Sea ice, Drift, Ice edge, Ice forecasting, Long range forecasts.

34-4184
Space-time characteristics of seasonal ice conditions in the North Atlantic. [Prostranstvenno-vremennye osobennosti polia sezonnoi ledovitosti Severnoi Atlantiki],
Orlov, N.F., *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1980, Vol.348, p.55-59, In Russian. 5 refs.
Ice conditions, Drift, Ice edge, Ice forecasting, Atlantic Ocean.

34-4185
Forecasting ice edge position in the Labrador Sea for a decade. [Metodika prognoza polozheniia kromki l'da na dekadu v Labradorskom more],
Orlov, N.F., *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1980, Vol.348, p.60-64, In Russian. 7 refs.
Sea ice, Ice edge, Ice forecasting, Long range forecasts.

34-4186
Field experiments on wave-ice interaction in the Bering Sea and Greenland waters, 1979.
Wadhams, P., et al, *Polar record*, May 1980, 20(125), p.147-153, 5 refs.
Squire, V.A.
Sea ice, Ocean waves, Ice mechanics, Aerial surveys, Remote sensing.

34-4187
Grönlands Geologiske Undersögelse and Geodaetiske Institut North Greenland Expeditions, 1978-80.
Higgins, A.K., *Polar record*, May 1980, 20(125), p.153-156, 2 refs.
Expeditions, Geological surveys, Logistics, Greenland.

34-4188
Gravity determinations at Vostok.
Bentley, C.R., *Polar record*, May 1980, 20(125), SCAR bulletin, No.65, May 1980, p.193-195, 9 refs.
Gravimetric prospecting, Gravity, Ice sheets, Antarctica—Vostok Station.
Gravity connections to Vostok have been made through two routes, one from Mirnyy and the other from McMurdo. These ties are of general interest for gravimetric studies in Antarctica, because they provide a direct airborne link between the stations upon which two major gravitational networks (American and Soviet) are based. These ties are examined in some detail. (Auth.)

34-4189
Glacial and glacial marine sediments of the antarctic continental shelves.
Anderson, J.B., et al, *Journal of geology*, 1980, 88(4), p.399-414, 30 refs.
Kurtz, D.D., Domack, E.W., Balshaw, K.M.
Marine geology, Glacial deposits, Sediments, Ice shelves, Cores, Ross Sea, Weddell Sea, Antarctica—Ross Sea.
Continental shelf deposits recently cored in the Weddell Sea, Ross Sea, and the George V region of Antarctica show three types of sediment. Type 1 sediments are massive, poorly sorted, and textually and mineralogically homogeneous downcore; they are unfossiliferous or contain reworked fossils, lack a preferred pebble orientation, and are overcompacted. They are interpreted as being basal tills. Type 2 sediments are crudely stratified, contain a sorted mud fraction, are texturally and mineralogically heterogeneous downcore, contain distinctive microfossil assemblages, are typically normally compacted, and have a horizontal pebble fabric. Type 3 sediments are similar to Type 2 sediments except that they are depleted in silt and clay and contain a moderately sorted sand fraction. Both Type 2 and Type 3 sediments are deposited from floating ice and reflect the action of marine currents. Distributions of these deposits on the antarctic continental shelf can be related to former glaciologic and marine conditions. (Auth. mod.)

34-4190
Avalanche impact landforms in Troms, north Norway.
Corner, G.D., *Geografiska annaler. Series A Physical geography*, 1980, 62A(1-2), p.1-10, 25 refs.
Avalanche deposits, Landforms.

34-4191
Channel development in snow-filled valleys, Resolute, N.W.T., Canada.
Woo, M.-K., et al, *Geografiska annaler. Series A Physical geography*, 1980, 62A(1-2), p.37-56, 15 refs.
Sauriol, J.
Meltwater, Runoff, Snowmelt, Channels (waterways), Snow cover distribution, Stream flow.

34-4192
Drainage systems associated with snowmelt, South Shetland Islands, Antarctica.
Birnie, R.V., et al, *Geografiska annaler. Series A Physical geography*, 1980, 62A(1-2), p.57-62, 19 refs.
Gordon, J.E.
Snow melting, Snow erosion, Channels (waterways), Meltwater, South Shetland Islands.
This paper re-examines the geomorphological role of meltwater derived from snow patches in the light of observations made during the break up of snow cover on Byers Peninsula in 1976. The object is to draw attention to the erosive capacity of snow melt and the fact that channels created by this action can show similar morphological characteristics to those commonly ascribed to a fluvioglacial origin. These include the crossing of local topographic divides and commencement in the middle of slopes. (Auth.)

34-4193
Break-up of the Yukon River at the Haul Road Bridge: 1979.
Stephens, C.A., et al, MP 1315, Fairbanks, University of Alaska, Sep. 1979, 22p. + Figs., 5 refs. Report of field activities.
Hanscom, J.T., Osterkamp, T.E.
River ice, Ice breakup, Ice cover thickness, Ice floes, Ice electrical properties, Water temperature, Electrical resistivity, Velocity, United States—Alaska—Yukon River.

34-4194
On the strength of sea ice and a correlation between the various strength tests.
Lane, J.F., *National Research Council, Canada. Division of Mechanical Engineering. Laboratory technical report*, Sep. 1979, LTR-LT-104, 29p. + 9 figs., 35 refs.
Sea ice, Ice strength, Flexural strength, Tensile properties, Compressive properties, Brines, Tests.

34-4195
Ice removal from concrete by high pressure water jets.
Kimberley, H.J., et al, *National Research Council, Canada. Division of Mechanical Engineering. Laboratory technical report*, Apr 1977, LTR-LT-74, 28p. + 5 figs., 1 ref.
Brierley, W.H.
Ice removal, Hydraulic jets, Concrete durability, Tests.

34-4196
Size distribution and Z-R relationship of snow particles observed in Nagaoka, Pt.2.
Yagi, T., et al, *Japan. National Research Center for Disaster Prevention. Report*, Mar. 1980, No.23, p.29-38, In Japanese with English summary. 11 refs. For Pt.1 see 34-1740.
Uyeda, H.
Snowflakes, Particle size distribution, Precipitation gages, Radar echoes, Snowfall.

34-4197
Measurement of the fall velocity of snowflakes in Nagaoka and its application to the Z-R relation.
Uyeda, H., et al, *Japan. National Research Center for Disaster Prevention. Report*, Mar. 1980, No.23, p.39-46, In Japanese with English summary. 9 refs.
Yagi, T.
Snowflakes, Velocity, Radar echoes, Snowfall, Particle size distribution, Precipitation gages.

34-4198
Workshop on Environmental Protection of Permafrost Terrain.
Brown, J., et al, *Northern engineer*, Summer 1980, 12(2), MP 1314, p.30-36, 8 refs.
Hemming, J.E.
Permafrost preservation, Environmental protection, Meetings, Thermal effects, Soil erosion, Route surveys, Site surveys, Design criteria.

34-4199
Estimating water equivalent snow depth from related meteorological variables.
Steyaert, L.T., et al, *U.S. Nuclear Regulatory Commission. Report*, May 1980, NUREG/CR-1389, 39p., 18 refs.
LeDuc, S.K., Strommen, N.D., Nicodemus, M.L., Guttman, N.B.
Snow water equivalent, Snow depth, Snow loads, Meteorological data, Models.

34-4200
Removal of volatile trace organics from wastewater by overland flow land treatment.
Jenkins, T.F., et al, *Journal of environmental science and health: Part A. Environmental science and engineering*, 1980, A15(3), MP 1313, p.211-224, 14 refs.
Leggett, D.C., Martel, C.J.
Waste treatment, Water treatment, Waste disposal, Vaporizing.
A prototype overland flow land treatment system was studied to determine its effectiveness in reducing the levels of volatile trace organics in municipal wastewater. Chlorinated primary wastewater, water collected from the surface at various points downslope and runoff were analyzed by GC/MS, using a purge and trap sampler. Results indicated that efficient removal of a number of volatile substances including chloroform and toluene can be achieved by this method of treatment. Loss of these substances was found to follow first order kinetics. The observed behavior is consistent with a volatilization process

34-4201
Proceedings of the 36th annual meeting.
Eastern Snow Conference, Alexandria Bay, New York, 1979, 149p., Refs. passim. For individual papers see 34-4202 through 34-4212.
Snow surveys, Meetings, Snow strength, Snowstorms, Snow water equivalent, Snow hydrology.

34-4202
Vegetation-snow relationships in Labrador.
Adams, W.P., et al, Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.1-25, 18 refs.
Barr, D.R.
Snow cover effect, Vegetation, Snow depth, Snow density, Snow water equivalent, Tundra, Mapping.

34-4203
Estimating water equivalent depth from related meteorological variables.
Steyaert, L.T., et al, Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.26-39, 11 refs.
LeDuc, S.K., Strommen, N.D., McCollom, W.E., Nicodemus, L.
Snow water equivalent, Snow loads, Precipitation (meteorology), Wind factors, Temperature effects, Models.

34-4204
Square-grid spatial interpolation of snow cover for a hydrometeorological information system.
Thompstone, R.M., et al, Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.40-52, 12 refs.
Pilon, P.J.
Snow cover distribution, Watersheds, Snow hydrology, Mapping.

34-4205
Some factors affecting spring snowmelt within Narrows Mountain Brook basin, a forested watershed in central New Brunswick.
Gordon, A.M., Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.53-67, 13 refs.
Snowmelt, Watersheds, Radiation balance, Thermodynamics, Meteorological factors, Seasonal variations, Statistical analysis.

34-4206
Snowmelt runoff forecasting using state estimation techniques.
O'Hayre, A.P., Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.68-74, 20 refs.
Snowmelt, Runoff forecasting, Models.

34-4207
Mean 700 mb circulation patterns associated with the snowiest and least snowy winter months over the eastern United States.
Wagner, A.J., Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.75-94, 16 refs.
Snowfall, Temperature effects, Atmospheric circulation, Meteorological factors, Winter, Snow depth, Maps.

34-4208
Breakup of streams in the Canadian high Arctic.
Woo, M., Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.95-107, 6 refs.
Ice breakup, Streams, Runoff, Snow depth, Snowmelt, Radiation balance, Computer applications, Meteorological charts.

34-4209
Ultrasound low power sonar for snow thickness measurements.
Caillet, A., et al, Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.108-116, 2 refs.
D'Aillon, F.G., Zawadzki, I.
Snow depth, Snow acoustics, Acoustic measurement, Experimentation.

34-4210
Snow studies associated with the sideways move of DYE-3.
Tobiasson, W., MP 1312, Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.117-124, 4 refs.
Snow strength, Bearing strength, Foundations, Stresses, Snow cover stability, Snow surveys.
In 1977, DEW Line station DYE-3 on the Greenland Ice Cap was moved sideways 210 ft (64 m) onto a new undistorted foundation. When this life extension concept was proposed, abrupt failure of the supporting snow was a major concern. Snow samples were obtained and strength tested at CRREL to determine the chance of an abrupt failure of the supporting snow. Model studies were also performed to determine the bearing capacity of the snow, and predictions were made of foundation settlement during the move. The results indicated that the move could be accomplished safely.

34-4211
Climatology of freezing rain in the Montreal area.
Leech, M.E., Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.125-140, 33 refs.
Freezing, Rain, Climatology, Ice storms, Meteorological data, Glaze, Temperature effects, Icing, Ice accretion.

34-4212
Results of Snow Survey Schedule Committee Questionnaire.
Hansen, P.L., et al, Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.141-147, 1 ref.
Paulin, M.G., Wagner, C.R.
Snow surveys, Meetings.

34-4213
Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers. [Tezisy dokladov].
Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979, Apatity, 1979, 177p., In Russian. For selected abstracts see 34-4214 through 34-4242.
Kriuchkov, V.V., ed.
Economic development, Human factors, Environmental protection, Forest fires, Polar regions, Cryogenic soils, Vegetation, Tundra, Forest tundra, Taiga, Landscape types.

34-4214
Economic development and environmental protection in the Far North. [Osvoenie Krainego Severa i okhrana ego prirody].
Kriuchkov, V.V., et al, Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.3-4, In Russian.
Syroechkovskiĭ, E.E.
Economic development, Permafrost distribution, Permafrost structure, Human factors, Environmental protection.

34-4215
Plant introduction and landscape gardening in the Far North. [Problemy introduktsii rastenii i zelenogo stroitel'stva na Krainem Severe].
Andreev, G.N., et al, Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.6-8, In Russian.
Kozupeeva, T.A.
Arctic landscapes, Introduced plants, Plant ecology, Frost resistance, Urban planning.

34-4216
Paludification of land in the North European USSR. [Zabolachivanie sushi na Evropeiskom Severe SSSR].
P'iavchenko, N.I., Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.9-11, In Russian.
Permafrost structure, Permafrost hydrology, Paludification, Swamps, Peat, Mosses, Forest tundra.

34-4217
Changes in Subarctic and boreal highlands vegetation due to human activities. [Antropogennye izmeneniia rastitel'nogo mira subarkticheskikh i boreal'nykh vysokogorii].
Gorchakovskiĭ, P.L., Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.12-13, In Russian.
Subarctic landscapes, Human factors, Environmental protection, Tundra, Forest tundra, Taiga, Swamps.

34-4218
"Arctic" problems in the biology of the White Sea. ["Arkticheskie" problemy biologii Belogo moria].
Khlebovich, V.V., Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.13-15, In Russian.
Marine biology, Cryobiology, Plant ecology, Ice cover effect, USSR—White Sea.

34-4219
Hepaticae—pioneers in matting disturbed Yamal tundra soils. [Pechenochnye mkhi kak pionery zadernenija pervichnogo substrata v tundrakh IAmala].
Andreeva, E.N., Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.21-22, In Russian.
Tundra, Geocryology, Soil erosion, Revegetation, Mosses.

34-4220
Tracked vehicle effect on subarctic tundra vegetation. [Vliianie dvizheniia gusenichnogo transporta na rastitel'nost' subarkticheskoi tundry].
Andreev, V.N., et al, Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.22-24, In Russian.
Perfil'eva, V.I.
Tundra, Tracked vehicles, Soil erosion, Protective vegetation, Mosses, Lichens.

34-4221
Regularities governing plant distribution with respect to snow cover in the southeastern Chukotskiy Peninsula. [Nekotorye zakonomernosti raspredeleniia rastitel'nosti v zavisimosti ot snezhnogo pokrova na iugo-vostoke Chukotskogo poluostrova].
Balandin, S.A., et al, Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.24-25, In Russian.
Razzhivin, V.IU.
Vegetation patterns, Tundra, Plant ecology, Ecosystems, Snow cover effect, Subarctic landscapes, USSR—Chukotskiy Peninsula.

34-4222
Enrichment of cultivated tundra meadow grasses with wild legumes. [Obogashchenie travostoia seianykh lugov v tundre dikorastushchimi bobovymi].
Kotelina, N.S., et al, Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.37-38, In Russian.
Grunina, L.K.
Tundra, Meadow soils, Cryogenic soils, Vegetation.

34-4223
Zonal distribution of Hepaticae in the Khibiny Mountains. [Raspredelenie vidov pechenochnikov po poiasam v Khibinakh].
Konstantinova, N.A., Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.38-39, In Russian.
Alpine tundra, Plant ecology, Mosses, Forest tundra, Forest land, Alpine landscapes.

34-4224
Changes in ecosystems of northern Kola Peninsula due to human activities. [Izmenenie ekosistem Kol'skogo severa pod vliianiem antropogennoi deiatel'nosti].
Kriuchkov, V.V., et al, Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.39-42, In Russian.
Syroid, N.A.
Human factors, Plant ecology, Ecosystems, Arctic landscapes, Environmental protection, Mining, USSR—Kola Peninsula.

34-4225
Natural reestablishment of vegetational cover in Central Yakutia. [Estestvennoe vosstanovlenie rastitel'nogo pokrova v tsentral'noi IAkutii].
Nakhabtseva, S.F., Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.48-49, In Russian.
Permafrost distribution, Landscape types, Soil erosion, Revegetation, USSR—Yakutia.

34-4226
Types of East Taymyr tundras and their significance as cattle grazing grounds. [O tipakh tundr Vostochnogo Taimyra i ikh pastbishchnom znachenii dlia ovtsebykov].
Rapota, V.V., Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.53-54, In Russian.
Tundra, Landscape types, Cryogenic soils, Soil erosion, Revegetation, Grazing.

34-4227
Changes in vegetational cover of Yamal arctic tundras induced by reindeer grazing. [Izmenenie rastitel'nogo pokrova pod vliianiem vypasa olenei v gipoarkticheskikh tundrakh IAmala].
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Tundra, Landscape types, Cryogenic soils, Soil erosion, Revegetation, Grazing.

34-4228
Pollination ecology of Alpine tundra plants on the Kolyma Highlands. [Ekologiia opyleniia rastenii gornoi tundry Kolymskogo nagor'ia].
Tikhmenev, E.A., Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.57-58, In Russian.
Alpine tundra, Cryogenic soils, Plant ecology, Plant physiology.

34-4229
Studying disturbed soils of reindeer grazing fields in the Messoyakha-Noril'sk pipeline area. [Metod izucheniia narushennykh olen'ikh pastbishch v raione gazoprovoda Messoiakha-Noril'sk].
Shchelkunova, R.P., et al, Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.66-67, In Russian.
Savchenko, I.V.
Cryogenic soils, Soil erosion, Tracked vehicles, Revegetation, Tundra.

34-4230
Relation between light requirements and pigmentation of tundra plants on Wrangel Island. [O soderzhanii pigmentov u rastenii tundr ostrova Vrangelia v sviazi s ikh svetoliubiem].
Aleksandrova, N.M., et al, Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.70-71, In Russian.
Gerasimenko, T.V., Popova, I.A., Zalenskii, O.V.
Photosynthesis, Plant physiology, Solar radiation, Arctic landscapes, Tundra.

34-4231
Respiration of Subarctic plants. [Dykhatel'naia sposobnost' rastenii Subarktiki].
Govorov, P.M., et al, Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.74-75, In Russian.
Torgovkina, E.E.
Plant physiology, Transpiration, Subarctic landscapes, Tundra, Cryogenic soils.

34-4232
Study of Arctic plant respiration. [Issledovanie dykhaniia Arkticheskikh rastenii].
Ivanova, T.I., et al, Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.77-78, In Russian.
Semikhatova, O.A.
Plant physiology, Transpiration, Arctic landscapes, Tundra, Cryogenic soils.

34-4233
Specifics of photosynthesis and photosynthetic metabolism in Arctic plants. [Spetsifika fotosinteza i fotosinteticheskogo metabolizma rastenii Arktiki].
Mokronosov, A.T., et al, Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.85-86, In Russian.
Nazarov, S.K., P'iankov, V.I.
Plant physiology, Photosynthesis, Arctic landscapes, Tundra.

34-4234
Low temperature effect on lipid exchange in trees and grasses and phase transformations in membranes. [O vliianii nizkikh temperatur na lipidnyi obmen v drevesnykh i travianistykh rasteniiakh i fazovye perekhody v membranakh].
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Introduced plants, Frost esistance, Plant ecology, Plant physiology.

34-4235
Accelerated growing of pine seedlings introduced beyond the polar circle. [Uskorennoe vyrashchivanie seiantsev khvoinykh introdutsentov v Zapoliar'e].
Daiasova, N.P., et al, Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.107-108, In Russian.
Zaitseva, A.F., Kazakov, L.A.
Forest land, Swamps, Peat, Introduced plants, Plant ecology, Frost resistance.

34-4236
Landscape gardening in towns and villages of oil producing areas in the Central Lena River region. [Osobennosti ozeleneniia gorodov i poselkov neftegazodobyvaiushchikh raionov Srednego Priob'ia].
Shilova, I.I., Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.128-129, In Russian.
Urban planning, Taiga, Introduced plants, Landscape types.

34-4237
Ecologic and geographic regularities governing reproduction cycles of pine and fir in the North. [Ekologogeograficheskie zakonomernosti reproduktivnogo tsikla sosny i eli na Severe].
Basov, V.A., Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.133-134, In Russian.
Taiga, Cryogenic soils, Plant ecology, Plant physiology, Forestry.

34-4238
Effectiveness of draining north taiga lands in Komi ASSR. [Lesoosushitel'nye raboty v severnoi taige Komi ASSR i ikh effektivnost'].
Gortinskii, G.B., et al, Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.137, In Russian.
Evdokimov, V.N.
Taiga, Paludification, Land reclamation, Drainage, Channels (waterways), Cryogenic soils.

34-4239
Metabolism of north taiga fir growing on drained and fertilized peat soil. [Metabolizm eli na osushennoi i udobrennoi torfianoi pochve severnoi podzony taigi].
Konovalov, V.N., Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.147, In Russian.
Taiga, Paludification, Land reclamation, Cryogenic soils, Peat, Plant physiology.

34-4240
Trends in the reforestation of light coniferous open woodlands in the Far Northeast. [Osnovnye napravleniia po lesovosstanovleniiu v podzone svetlokhvoinykh redkostoinykh lesov Krainego Severo-Vostoka].
Kotliarov, I.I., Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.148-149, In Russian.
Subarctic landscapes, Forest land, Cryogenic soils, Revegetation, Forestry.

34-4241
Growing forest cultures beyond the polar circle. [K voprosu sozdaniia lesnykh kul'tur posadkoi v Zapoliar'e].
Pankratov, E.N., Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.157-158, In Russian.
Polar regions, Forest land, Cryogenic soils, Introduced plants, Revegetation.

34-4242
Forest fire hazard in the North. [Pozharnaia opasnost' rastitel'nosti Severa].
Filippov, A.V., Simpozium Biologicheskie problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.163-164, In Russian
Forest fires, Taiga, Vegetation, Environmental protection.

34-4243
Standing crops and species composition of diatoms in sea ice from Robeson Channel to the Gulf of St. Lawrence.
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This volume describes all the currently available operational products of the National Environmental Satellite Service (NESS). It is an update of the (1977) National Environmental Satellite Service Catalog of Products. A Product is defined as any item routinely produced and available for applications within the environmental sciences. These range from photographic displays, charts, and teletype messages to the raw alphanumeric data available on computer disk and tape. A brief description of the product, its known accuracies (when applicable), a list of primary users, and an example of the product are given; a summary table of products can be found at the end of this volume for quick reference. Data for Antarctica, derived almost exclusively from satellite observations, and sea ice charts for the Southern Oceans are included among NESS products.

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See: Introduced plants

Plant location

See: Site surveys

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See also: Algae; Lichens; Mosses; Trees (plants); Vegetation

Plastic coatings

See: Protective coatings

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See also: Remote sensing

Telluric currents

See: Geoelectricity

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See: Air temperature; Degree days; Frozen ground temperature; Frozen rock temperature; Ice temperature; Low temperature research; Rock temperature; Snow surface temperature; Snow temperature; Soil temperature; Surface temperature; Water temperature

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